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Farm to School Programs as a Tool for Food System Sustainability

Samantha Jackson
Clemson University, samrjackson@gmail.com

FARM TO SCHOOL PROGRAMS AS A TOOL FOR FOOD SYSTEM SUSTAINABILITY

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Samantha Jackson
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Dr. Caitlin Dyckman, Committee Chair
Dr. James London
Dr. Beth Kunkel

Abstract

Are Farm to School Programs being utilized by communities as a component of agricultural sustainability? This initial question led to a larger inquiry as to what agricultural sustainability tools communities are incorporating, with Farm to School Programs as a component, and what roles, or potential roles, planners are playing in program creation and implementation. A literature review of the current food system, sustainability threats imbedded within the system, and the potential for local food system planning, specifically Farm to School Programs, to overcome these threats provided a framework for research on the agricultural sustainability tools being planned for within communities and roles planners may be playing in program creation and implementation. Two surveys, one to planners in communities whose mayor voluntarily signed the U.S. Mayors' Climate Action Plan Agreement and one to planners in communities with a known Farm to School Program, were implemented to answer the posed research questions. Findings indicated that while the American Planning Association is advocating food system planning and agricultural sustainability, many communities are still not implementing these practices. Farm to School Programs are not widely planned for specifically, but some communities are incorporating agricultural tools that indirectly help to create and sustain the programs. These tools may provide the needed support for future inclusion of the programs within a planning document.

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Introduction

The topic of sustainability is a growing theme in almost every field, particularly in the study and practice of urban planning. Many cities are writing and implementing sustainability initiatives, such as climate action plans, to help guide future land use and growth in a way that preserves and improves current quality of life without interfering with future generations' well being. The initiatives cover many topics, spanning from energy consumption to biodiversity. Agriculture and food systems are frequently discussed in sustainability initiatives but are subject areas that present many implementation problems and challenges.

The present U.S. agricultural and food systems, starting with policy at the federal level, cannot be sustained at the current status quo. The subsidizing of large, corporate farms is forcing smaller and more crop-diverse farms out of the market. Medium and small sized farms are being pressured by both economic and urban growth forces to sell their property for development, thereby encouraging sprawl. Food deserts[1] are appearing in inner cities as supermarkets move to the growing suburbs and the city's underserved have no choice but to buy high-calorie, low-nutrient density food at fast food and convenience stores. Obesity and type 2 diabetes are on the rise, especially in children. Planners must address these unsustainable issues just as they address housing or transportation issues.

[1] Food deserts are defined by the USDA as being "areas with limited access to affordable and nutritious food" (USDA, 2009).

There are many nutritional food programs in place at all levels of government to help fill the nutritional gaps present in current food policy. The Farm to School network is an example of these governmental strategies. The grass-roots programs are endorsed by the USDA as a way for school-aged children to receive healthy and fresh produce while also supporting local agriculture. The programs are growing across the country and could provide sustainability support for cities that are facing agriculture and food security issues.

This literature review begins by presenting sustainability planning as a framework to discuss issues with the current food system. The United States food system is then introduced through a history of the conventional food system, after which sustainability issues are discussed as ecological and equitable concepts. Information on local food systems and current food programs is addressed through food system planning, with Farm to School Programs as a specific component, as a possible solution to food sustainability issues discussed previously. This literature review provides the background needed for learning what agriculture sustainability elements are being included in sustainability plans and whether Farm to School Programs are serving as a tool within these larger elements.

Planning for Sustainability

There is a growing edict in the planning field regarding sustainability, a term defined in the 1987 report from the United Nations World Commission on Environment and Development as "development that meets the needs of the present generation without compromising the ability of future generations to meet their owns needs" (Berke and Conroy, 2000). To guide nations toward sustainability, the Commission merged societal values that can reduce the current trend of over consumption. These values are commonly referred to as the "three Es", which represent the economy, the environment and social equity (Berke and Conroy, 2000).

Planning for these issues means to strive for balance of the three goals. If any goal is underrepresented the plan cannot be sustainable (Campbell, 1996; Berke and Conroy, 2000). Berke and Conroy elaborate on sustainability by adding the reproduction dimension and linking local to global concerns (Berke and Conroy, 2000). Reproduction builds upon Campbell's idea of sustainability being "the long-term ability of a system to reproduce" (pg. 306) to also include the ability of a city to foster revitalization. Linking local and global concerns means communities should reach beyond individual future development interests and consider regional and global needs. Communities function within a larger regional framework meaning plans within one community may affect neighboring areas (Berke and Conroy, 2000).

Sustainability seems easy enough to define, but since its inception over 20 years ago the definition has been difficult to carry out. To help urban planners strive towards sustainability, the American Planning Association defines sustainability as "whether the Earth's resources will be able to meet the demands of a growing human population that has rising aspirations for consumption and quality of life, while maintaining the rich diversity of the natural environment or biosphere" (APA, 2008, pg. 1).

The Policy Guide on Planning for Sustainability, adopted by the APA, supports several dimensions to the sustainability issue:

1. "Sustaining communities as good places to live, and that offer economic and other opportunities to their inhabitants.
2. Sustaining the values of our society, [such as] individual liberty and democracy.
3. Sustaining biodiversity of the natural environment, both for the contribution that it makes to the quality of life and for its own inherent value.
4. Sustaining the ability of natural system to provide the life-supporting services that are rarely counted by economists, but which have recently been estimated to be worth nearly as much as total gross human economic product" (APA, 2008, pg. 1).

Sustainability is a helpful concept for long-term planning. It defines social priorities and brings together environmental concerns that can allow us to measure how far we have come and how far we need to go to reach something close to

sustainable (Campbell, 1996). Sustainability planning embraces the problem of sprawling development trends and can be used as an overarching guide to planning that encompasses all planning elements at all levels of government (Berke, 2002).

In direct relation to food systems, the APA lists the loss of agricultural land and open space, soil degradation, pollution, and social inequality as major sustainability issues. Unfortunately, these sustainability issues are hard to address in the current U.S. system because of their interrelatedness and complexity, as well as jurisdictional conflicts between cities and counties. The next section will discuss the current food system and the ways in which it contrasts with sustainability tenants.

The Current US Food System

A Brief History

"It will not be doubted that with reference either to individual or national welfare, agriculture is of primary importance… Institutions for promoting it grow up, supported by the public purse; and to what object can it be dedicated with greater propriety?"

- George Washington, 1796, Message to Congress (Gardner, 2002).

The American agricultural system has seen great change and growth since the first US settlers arrived in Jamestown in 1607. The New World was full of natural resources and room for crop production, but the old English ways of farming did not translate well to the new environment; successful farming techniques were

generally learned from local Native Americans. Generations of farmers discovered agriculture methods through trial and error, learning from the mistakes of earlier farmers and developing new ways to feed the growing population (Cochrane, 1993).

Slavery plantations east of the Mississippi River provided food surplus and created farming fortunes, while most American farms were still largely subsistence farms. As the frontier opened and settlers started moving West during the 18th and 19th centuries, more farms and plantations were being developed. Worker productivity increased as machines were introduced to help with farm labor, but total food output for labor input increased little (Cochrane, 1993). Early 20th century farms were very labor intensive, with small, diversified farms providing food to rural areas where more than half of the US population lived (USDA, 2005). However, even as early as 1908, America began seeing the potential of agricultural prosperity. In the Midwest, there was a period that "developed an amazing and unexampled prosperity for the farmers…The farmers of the mortgage-ridden state of Kansas of former days have stuffed the banks of that State full of money" (Gardner, 2002).

Agricultural development changed drastically over the first two decades of the 20th century. Available food supply was stagnant while population grew and demand increased dramatically. During these decades, agricultural technology began shifting to include biological and chemical advances that led to increased food output in the 1930s. By the 1950s, agricultural supply had increased over 25 percent from the supply 10 years before (Cochrane, 1993).

This time also saw increased support from the federal government, through policies created under the New Deal, to ensure there was economic support to farms during times of economic downturns as well as guaranteeing low prices for consumers (Gardner, 2002). The USDA argues that these policies have improved US agricultural efficiency, leading to overall economic growth. Farm outputs have increased while allowing households to spend a smaller portion of their earnings on food. Farm operations have also become increasingly specialized, from an average of five commodities per farm to an average of one commodity per farm (USDA, 2005).

Agricultural advancements continued through the 1970s and 80s, as industrialized farming became a large component of the US economy and an international competitor in the global food supply (Cochrane, 1993). To maintain this growth, the US government heavily subsidies industrialize agriculture that specializes in monocultures[2] of corn and soy, a continuation of a policy started in the early 20th century. This growth has come with a cost. Research on the consequences of industrialized agriculture and its monocultures shows environmental degradation, social inequity and food insecurity, and decreased food quality, to varying degrees.

[2] Monocultures occur when "expanses of farmland are devoted to one single crop for many years in a row, therefore decreasing soil quality and increasing dependency on fertilizers and pesticides" (Altieti, 1999).

Error! Reference source not found. is a diagrammatic representation of the relationships between policies, entities, and outcomes in the U.S. agricultural system. The federal government heavily subsidizes industrial agriculture, which in turn supplies product to all other components of the food supply chain. Threats to sustainability lie in the size and practices of industrial agriculture, the movement of food retailers to the suburbs, and the manufacture of high energy, low nutrient dense foods by the food processing industry; these are all issues discussed in subsequent sections.

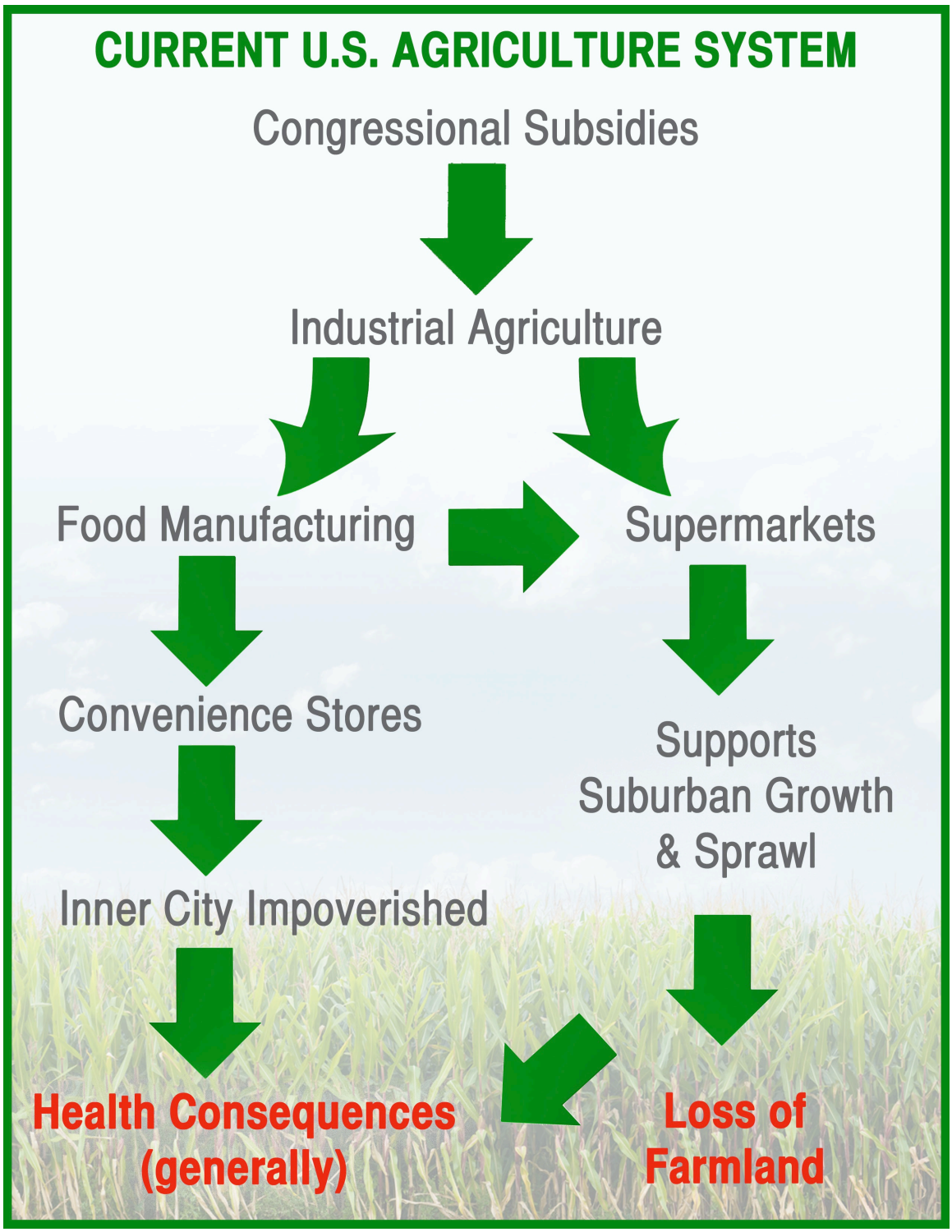

Figure 1- Food System Diagram

Source: Caitlin Dyckman and Samantha Jackson

Ecological Issues of the Conventional Food System

Loss of Small and Mid-level Agricultural Production

As of the last agricultural census in 2007, there are 300,000 fewer farmers than there were in 1979. About 94 percent of US farms are small, family-owned businesses, meaning that annual sales are equal to or less than $250,000. However, these small farms only receive 41 percent of all farm income even though the number of family farms has remained relatively stable since 1997. There are now roughly two million family farms and both their sizes and household incomes vary significantly. About 60 percent of all farming households grossed under $10,000 in 2007 for farm income, thus receiving most to all of their household income from off-farm resources (USDA, 2008)

Unfortunately, the majority of farm income goes to a few large corporate owned farms, which also receive the majority of federal government commodity subsidies. Small farmers lack the necessary markets where they can receive a reasonable price for their products. These markets correspondingly decrease as the conversion of farmland to urban uses becomes more prevalent. Even the rapid proliferation of farmers' markets can only support small farmers year-round in large cities (Vallianatos et al. 2004).

Rapid growth of cities and suburban sprawl has caused continued loss of agricultural land even while the rapid growth in population from birth and immigration has caused a greater need for agricultural land. With a human population growth rate of about 1.2 percent per year, each new person is using land

at a rate of 40-60 percent more than their predecessors a few decades ago. A continuation of this land use trend will result in a reduction from the current 0.8 hectares of productive farmland per person to about 0.3 hectares per person by the year 2050. This trend means that food production per unit of land will have to triple to maintain current level of food for domestic consumption as well as export (Francis et al. 2005).

However, in 2009 the USDA launched the "Know Your Farmer, Know Your Food" program in an attempt to reconcile some of the small and mid-sized farm economic issues and aid agricultural land preservation. This effort, spearheaded by Deputy Secretary Merrigan, is an agency-wide effort to create economic and networking opportunities for farmers by connecting consumers to local food producers. The program is also the first of its kind from a federal agency that is starting a nation-wide dialogue about food consumption and the distance food presently travels. Goals for the program include grants and loan support to local farmers, as well as a national farm database for consumers to research food producers in their area (http://www.usda.gov/wps/portal/knowyourfarmer?navtype=KYF&navid=KYF_MISSION).

Environmental Degradation

The decrease in number of farms and the corresponding increase in food supply has led to agricultural intensification, which can generate environmental problems at all levels. Monocultures increase soil erosion, lower soil fertility, and

reduced biodiversity at the local level. Regionally, these land-uses can pollute ground water and eutrophy rivers and lakes with pesticide and fertilizer-laden runoff (Matson et al., 1997). The USDA's recent reports show that farmers apply 500 million pounds of pesticides and 40 billions pounds of fertilizer each year. Much of these chemicals run off the farms and into nearby lakes, rivers, and ground water causing "water quality degradation, known affects to aquatic life, and eventual consequences for human consumers through the food chain" (Kaufman, 2004). Agricultural intensification has equally significant global implications, including atmospheric and climatic impacts that contribute to global climate change (Matson et al., 1997).

Social Inequity of the Conventional Food System

Lack of Access

The modern conventional food system is driven by profit maximization and market dominance. These forces are characterized by highly specialized and standardized commodity growing practices that are dependent on biotechnological research, federal and corporate support for large scale agriculture, research at land-grant universities, and reliance on food imports and exports that travel great distances to reach consumers. This food system is damaging to local rural economies and makes diversified farming operations unprofitable or forces them out of business (Campbell, 2004).

Since the 1980s, there has been an increase in the number of hunger relief networks, such as food pantries and food banks, federal food stamp assistance, and

surplus commodity distribution. This increase has been a direct response to the emergency food needs of low-income families despite an abundant food supply in the United States. This emergency food movement depends entirely upon the conventional food system for the food it distributes. Unfortunately, this system only addresses short-term hunger alleviation as opposed to long-term issues such as nutritional inequality, food access and sourcing (Campbell, 2004).

Grocery stores are vastly underrepresented in low-income neighborhoods in urban areas across the country, caused in part by location trends and consolidation to the supermarket structure over the past several decades. New stores have emerged to meet the needs of the growing suburban population but fewer and fewer stores are located in or adjacent to poor inner-city neighborhoods. New stores are not relocating to replace them, and this loss has caused an "urban grocery store gap" (Galvez et. al, 2007 and Pothukuchi, 2005).

Given their lack of mobility and funds, low-income families depend on smaller and more expensive grocery or convenience stores that do not have the same nutritional choices as those found in suburban supermarkets. This disparity can result in higher food prices, which leads to a higher percentage of household income spent on food (Clifton, 2004). A 1995 study of 21 major U.S. cities found that there were 30% fewer supermarkets in low-income areas than in high-income areas. Where there are no grocery stores, families pay prices at convenience stores that can be as much as 48% higher than at supermarket chains (Mikkelsen et al., 2001).

Inadequate income and lack of access to affordable food has made it difficult for many families to provide basic nutrition for their children. This creates food insecurity, or circumstances in which consumers cannot consistently access safe and adequate food through socially acceptable means for their families. Recent national data show that despite federal food assistant programs and private programs, food insecurity is a persistent problem, affecting 11 percent of all households and 16 percent of households with children (Jyoti et al., 2005).

Lack of affordable housing in inner cities causes greater hunger risk for poorer residents. Many will pay their rent before spending money on groceries because food is more easily obtained from other sources than shelter (Pothukuchi & Kaufman, 1999).

Increased Health Risks

Food related health issues, usually caused by an unbalanced diet or excessive intake, are major contributors to many illnesses that include hearth disease, type 2 diabetes, and obesity. Racial and ethnic minorities concentrated in urban areas face a higher risk of diet-related health problems. According to the United States Department of Health and Human Services, the prevalence of obesity began to increase at the end of the 1970s. From 1978 to 2000, the percentage of obese adults in the United States grew from under 15 percent to 30 percent. The direct medical cost of obesity in 2007 was estimated to be over $130 million dollars nationally (Baltimore City Council, 2007).

African American women have the greatest prevalence of obesity of any racial, ethnic or gender group. A little over 81 percent of all African American women are overweight and almost 54 percent are obese. There is evidence that shopping at or living in proximity to a supermarket is associated with better health and reduced risks of being overweight. African-American neighborhoods are characterized as being more obesogenic because of the limited availability of supermarkets and healthy food options (Odoms-Young, 2009).

Children from low-income families are especially susceptible to this health crisis given their lack of food choice and increased contact with commercial food products. The prevalence of overweight children more than doubled from 1980 to 2004. Overweight children face a 70 percent chance of becoming an obese adult, thus causing an increased risk in heart disease, type 2 diabetes, types of cancers and stroke (Baltimore City Council, 2007).

In a caregiver and self-reporting survey compiled in 2004, 73 percent of all school-age children were in very good or excellent health and five percent were in fair or poor health. School-age children in the lowest-income group were less likely than school-age children in other income groups to be in very good or excellent health and more likely to be in fair or poor health (Fox & Cole, 2004). This disparity could be the result of lack of access to proper nutrition.

Food System Sustainability Tools

Institutional Food Programs

Federal nutrition programs provide the primary safety net for low-income households to supplement household food supplies. Community agencies, including planners, can ensure that all families with small children are aware of lunch/breakfast programs and understand eligibility (Mikkelsen et al., 2001).

As of 2008, the National School Lunch Program (NSLP) operated in over 96,000 public and nonprofit private schools to provide low-cost or free lunches to over 30 million children daily. Free lunches are available to children in households with incomes at or below 130 percent of poverty and reduced price lunches are available to children in households with incomes between 130 and 185 percent of poverty (USDA, 2009).

To fulfill its role as part of the Federal nutrition safety net, the NSLP makes free and reduced-price meals accessible to needy children while maintaining program integrity. The 2004 Child Nutrition and Women, Infants, and Children Reauthorization Act requires that all school districts participating in the NSLP directly certify students who are in households that participate in the Supplemental Nutrition Assistance Program (formerly the Food Stamp Program) (USDA, 2009). Communities can also help foster nutrition programs by planning with public health nutrition programs and other private and non-profit food processing industries, like farms, to create coalitions and networks (Mekkelsen et al., 2001).

Local Food Systems

Gillespie and Gillespie have defined the food system as including the foundations for food production, the social aspects for consumption, relevant governmental policies, and the actual growing, processing and distribution of the food. However, the system is even more complex- there is also an entanglement of complicated biophysical and social structures resulting in many food products that are bad for human health and the environment (Gillespie and Gillespie, 2000).

The community food system is an individual part of the larger food system within the U.S. Most community food systems are not self-reliant and are very dependent on the national food system. Level of control also varies within a community food system; the local members may take charge or an outside company may be in control (Gillespie and Gillespie, 2000).

A community food system can also vary in the following ways:

"**Accessibility**- refers to the ability of community members to obtain culturally acceptable foods regularly and reasonably.

Healthfulness- refers to the appropriate nutrition of available foods.

Safety- refers to absence of pathogens, toxic natural materials and man-made chemicals in the available foods.

Sustainability- refers to the capability of the food system to continue to produce indefinitely without depleting natural resources or producing waste that cannot be consumed within the system.

Resilience- refers to the system's ability to produce food regardless of unusual weather, social upheavals or other system disturbances. A resilient system would be based on a variety of foods and a high level of biodiversity.

Food Security- refers to the ability of all persons to obtain a culturally acceptable nutritionally adequate diet through local non-emergency services" (Gillespie and Gillespie, 2000).

A local food system can also be developed through the concept of a "foodshed", which is the "area defined by the structure of supply" (Feenstra, 1997, pg. 28). A foodshed incorporates all of the variables defined by Gillespie and Gillespie (2000) to include not just a geographic area where foods are grown, but also social and cultural characteristics of a community (Feenstra, 1997).

Planning for these variables supports sustainability's mission of self-sufficiency, decentralization and democratization (Feagan, 2007). The local food system can provide power and knowledge in food supply systems that have become increasingly distorted by physical and social distance (Feagan, 2007). The goal of a local food system is for all persons within a centered, geographically small, region to have access at all times to "readily available, nutritious, safe and sustainably produced food supply" (Kaufman, 2004, pg. 39).

Farm-to-School Programs

"*In the long view, no nation is healthier than its children, or more prosperous than its farmers*."

- Harry Truman, 1946, on the signing of the National School Lunch Act

To provide farm-fresh and local food to schools, as well as education and field trips to give children experience in growing food, Farm to School Programs have been started in 44 states. They are considered by nutritional experts and many in the agricultural economic field to be a possible remedy for issues not addressed in the current food system, such as support of local farms and affordable healthy foods for children.

Specifically, the programs are trying to tackle the current obesity epidemic by changing the eating habits of children so that they will have the knowledge to make healthful choices in the future. The programs also provide needed nutrients and healthy foods to children from low-income families who receive the majority of their caloric intake at school (Kalb et al., 2004).

Farm to School Programs also provide a critical market to support local farmers. The programs counteract the negative trends in farming statistics (such as loss of land and decrease in income) by making direct connections between farmers and institutions, creating a mutually beneficial relationship between the farmers, children and the community (Kalb et al., 2004). This market relates to the larger local food system's mission of lowering barriers that industrial scale agriculture has placed between small- scale producers and consumers (Vallianatos et al., 2004).

Food Systems Planning

Pothukuchi and Kaufman (1999) cite four significant factors in understanding why the food system has been a low priority in urban policy issues: 1) People generally take the food system for granted; 2) the historical development of cities led to specific issues and problems that put urban and rural agendas in opposition; 3) the technologies of the industrial revolution that mechanized farming and food production ensured that people could live in previously rural terrain; and 4) there is a persistent dichotomy in public policy between urban and rural polity (pgs. 213-214).

Planning agencies are oriented to taking a comprehensive look at a city's needs and how issues confronting cities can be addressed. The Association of Collegiate Schools of Planning state that a city planner should "focus on improving human settlements with an emphasis on making places better serve the needs of the people. They should also focus on interconnections among distinct community facets, incorporate linkages among physical, economic, natural, and social dimensions, as well as linkages among sectors such as transportation and land use." These beliefs show direct connections to the food system but, unfortunately, the system physically lies outside the urban realm. Without proper planning jurisdiction over agriculture systems in the hinterland there cannot be a change and a connection to urban consumers. Introduction of the food system into

sustainability plans gives planners the authority needed to preserve open space and ensure food security for urban residents.

Planning literature currently focuses on physical planning and urban design, land use, economic development, growth management, transportation, real estate development, housing, and historic preservation. While this is a long list with many important subjects, the food system has traditionally been absent (Pothukuchi & Kaufman, 2000). However, there is a small, but growing, body of literature supporting urban agricultural and other agricultural sustainability as initiatives that serve as a component of environmentally and socially sustainable communities (Mendes et al., 2008). While there may be many communities implementing urban agricultural or food system policies, the literature has not kept up, but the gap in knowledge is starting to be filled (Mendes et al., 2008).

This lack of discussion in the literature can lead to significant issues in community planning. For example, gap in knowledge concerning the social inequity in food access facing the low-income community can lead to underdevelopment of food stores in these areas and also health risks associated with the poor-quality food that is available (Pothukuchi & Kaufman, 2000). Also, sprawl will persist as a common land use trend and farm size will continue to shrink as open land becomes developed. Without knowledge of commercial market barriers for small farmers, farmers will continue to be forced to sell their land to a developer, which further compounds the sprawl problem.

In the spring of 2007, the American Planning Association adopted the Policy Guide on Community and Regional Food Planning. The APA cites food as being a sustaining and enduring necessity, yet one of the basic essentials for life that has historically been overlooked in planning. However, the past few years have seen an increase in food planning awareness that APA attributes to the following factors:

- "Recognition that food system activities take up a significant amount of urban and regional land
- Awareness that planners can play a role to help reduce the rising incidence of hunger on one hand and obesity on the other
- Understanding that the food system represents an important part of community and regional economies
- Awareness that the food Americans eat takes a considerable amount of fossil fuel energy to produce, process, transport, and dispose of
- Understanding that farmland in metro areas, and therefore the capacity to produce food for local and regional markets, is being lost at a strong pace
- Understanding that pollution of ground and surface water, caused by the overuse of chemical fertilizers and pesticides in agriculture adversely affects drinking water supplies
- Awareness that access to healthy foods in low-income areas is an increasing problem for which urban agriculture can offer an important solution
- Recognition that many benefits emerge from stronger community and regional food systems" (APA, 2009).

The policy guide strives to connect the two overarching goals of building stronger, sustainable, and more self-reliant community food systems and suggesting ways the industrial food system may interact with communities and regions to enhance the economy, public health, ecological sustainability, social equity, and cultural diversity (Pothukuchi et al., 2007).

Planning for Farm to School Programs

In addition to benefiting low-income students with healthy and nutritious meals, Farm to School Programs extend to other sustainability issues, such as the viability of small and medium sized farms, including those at the urban edge, new strategies to preserve farmland and combat sprawl, and a food systems approach that emphasizes local and seasonal foods as opposed to food that is produced far away and is highly processed (Vallianatos et al., 2004).

As discussed previously, farms are especially vulnerable to sprawl because the agricultural economy usually fails to provide most farmers with enough income to sustain their livelihoods. Federal subsidies to large agricultural production and the consolidation of the food-processing industry have only added to the difficulty facing this industry (Vallianatos et al., 2004). When small farms fail, the local community is left with not only a shrinking economy but also a lack of access to healthy, unprocessed food or food that has not traveled hundreds or thousands of miles.

As farmland loss has become more magnified, a number of policies have been developed to slow down these trends. These policies include land trust purchases,

habitat protection, urban growth boundaries, transfer of development rights, property tax relief and agricultural district creation (Vallianatos et al., 2004). By slowing down the trends, planners can ensure the existence of workable farmland and a place for production of healthy food. Once the production of food is secure, planners have paved the way for school districts to provide a stable market for these farms. A mutually beneficial relationship then arises as schools pay the farms for fresh and healthy food for the students (Vallianatos et al., 2004).

Farm to School Programs also serve as a strategy to prevent obesity, a social inequity issue that affects the whole community through associated costs. As measures to prevent obesity, The Centers for Disease Control and Prevention write, "communities should increase the availability of healthier food and beverage choices in public service venues". Schools are a key venue in which to do so. The CDC found that Farm to School salad bar programs increase fruit and vegetable consumption among students (Khan et al., 2009).

In addition to schools, communities can provide incentives for the production, distribution and procurement of foods from local farms. The CDC cites that currently the United States is not producing enough fruits and vegetables to supply all US citizens with the quantities recommended by the USDA (Khan et al., 2009). By providing incentives for procurement and distribution through Farm to School Programs, planners can ensure a market for local producers, which may lead to an increase in the availability and consumption of locally produced foods (Khan et al., 2009).

Summary

There is plentiful evidence that the current U.S. agricultural and food systems are not sustainable. Local farmland is being lost at an alarming rate, supermarkets are leaving the inner cities, and obesity and type 2 diabetes rates are on the rise, especially among children. Planners must address these issues through policy and land use tools, primarily those discussed in the local food planning literature.

One of these tools, Farm to School Programs, may provide support for a larger local food movement addressing food security and agricultural issues. These programs address the environmental problems of farmland loss and the equity issues of access and health by providing fresh and local produce to children. This project will attempt to answer the following research questions:

- What agricultural sustainability elements are being incorporated in plans or ordinances and are Farm to School Programs one of these tools?
- If the programs are included, how have planners participated in either planning for or implementing these programs?

Methodology

The food system is complex and self-reinforcing, both of which provide little to no room for planners or the concept of sustainability. Industrial agriculture and public health issues stemming from food access for lower-income residents present obstacles that impede sustainability implementation. However, Farm-to-School programs may solve a few aspects of these problems as part of larger sustainability initiatives.

To determine what elements of sustainable agriculture planning are currently being used and how the local food movement is incorporated (including Farm to School programs) separate Internet-based surveys for two specific populations were implemented. Don Dillman's *Mail and Internet Surveys: The Tailored Design Method* (2000) guided survey construction, including length, question type and implementation. To curtail length and ensure a higher response rate, demographic questions were minimized to ask only pertinent information. As suggested by Dillman, every respondent was meant to interpret the survey questions the same way. This pursuit was tested by a group of peers and planning colleagues. The questions were re-worded to incorporate suggested changes and the researcher and group of peers tested the on-line survey instrument for flow and understandability. A copy of the paper surveys can be found in Appendix C.

Community Agricultural Sustainability Initiatives

Survey

The objective of this survey was to determine whether current sustainability plans, climate action plans, and/or sustainability initiatives include agriculture issues. At the core of the survey were questions asking whether agriculture issues have been included, and if so, were Farm-to-School programs considered, and, if not, why and would they be considered in the future? The full survey can be found in Appendix C.

Population

This survey was sent to community planners in cities where the mayor voluntarily signed the U.S. Mayors' Climate Action Plan Agreement. This population was chosen because the membership is not application-based, which limits some bias, and the membership is sizable enough (1017 signatories) to capture a wide range of communities across the country in both size and location.

Instead of applying and being judged on criteria, mayors-and their communities-commit to the following actions when they sign the Climate Action Plan Agreement:

- "Strive to meet or beat the Kyoto Protocol targets in their own communities, through actions ranging from anti-sprawl land-use policies to urban forest restoration projects to public information campaigns
- Urge their state governments, and the federal government, to enact policies and programs to meet or beat the greenhouse gas emission reduction target

suggested for the United States in the Kyoto Protocol -- 7% reduction from 1990 levels by 2012

- Urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system" (US Conference of Mayors)

A list of all 1017 mayor signatories is available on the website. However, the focus on the continental U.S., and mayors from Puerto Rico are also included. So that subset of the population was removed, thus reducing the population to 1002. Because a contact list for this population was unavailable and the target survey respondents were community planners instead of the mayor, Internet searches for every community, phone calls, and searches through the American Planning Association's member directory were used to find the planners' e-mail contacts. The final population with available e-mail addresses came to at total of 911 community planners. At least one planner from each of the 50 states, as well as the District of Columbia, was contacted. Figure 2 displays the geographic region of the contacts. The Midwest, Northeast, and Pacific had the highest percentage of contacts, meaning that more mayors from these regions have signed the climate action agreement. A list of states, regions, and number of contacts for each state can be found in Appendix A.

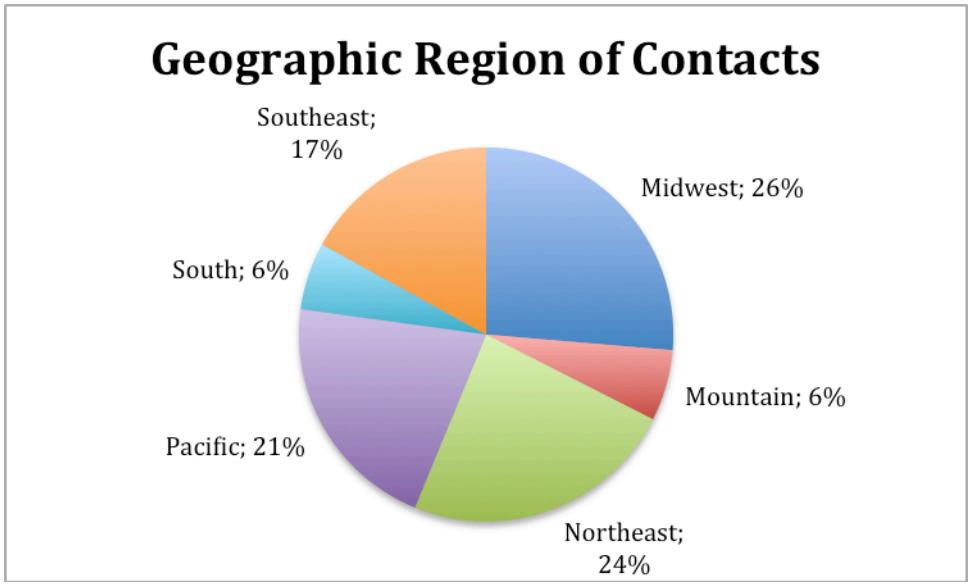

Figure 2- Contacts by Region (One)

Figure 3 displays the community populations of the contacts for this survey. Most contacts were planners in communities with populations between 25,001 to 100,000 people, which range from small town to a fairly sizable city. Relative to other contacts, there were few metropolises (500,000 to over 1,000,000) and few communities with populations less than 1,000 contacted. This distribution may be helpful in gathering information whether community size plays a role in agricultural planning. Population breakdowns were determined by U.S. Census Metropolitan Statistical Area (MSA) definitions.

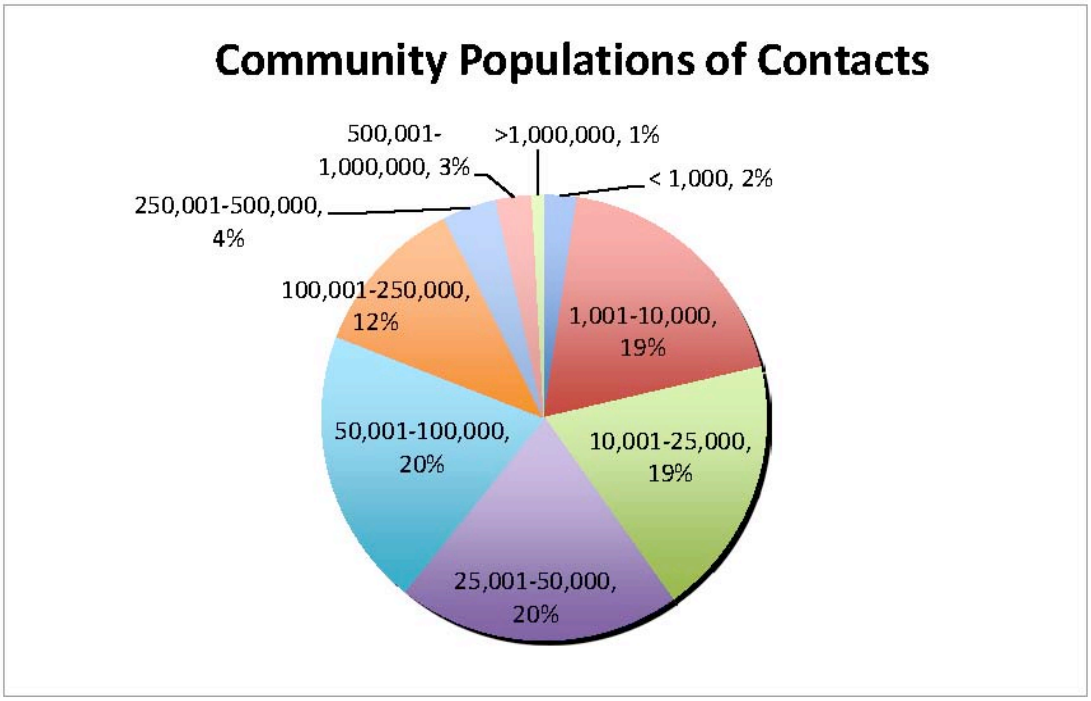

Figure 3- Contacts by Community Population (One)

Roles of Community Planners in Farm to School Programs

Survey

The basic premise of the second survey was to find out if planners had any role in their community's Farm to School Program creation, and, if not, are they contributing to the programs now in any way or would they consider planning for these types of programs in the future? The full survey can be found in Appendix C.

Population

The survey was sent to urban planners in communities that currently have a Farm to School Program in place with the expectation that planners in these communities may be aware of Farm to School Programs or may have played some part in creating or implementing their community's program. The population was

derived from a database of current programs obtained from the director of the Farm to School Network. While there are more than 2,000 programs located across the country, only 200 communities are documented by the Network. Internet searches for every community, phone calls, and searches through the American Planning Association's member directory were used to find the planners' e-mail contacts. The final population came to 163 community planners in 37 states. Figure 4 displays the geographic regions of the contacts. Farm to School Programs are mostly located in the Pacific region (primarily California) and the Northeast. A list of the states, regions, and number of contacts in each state can be found in Appendix A.

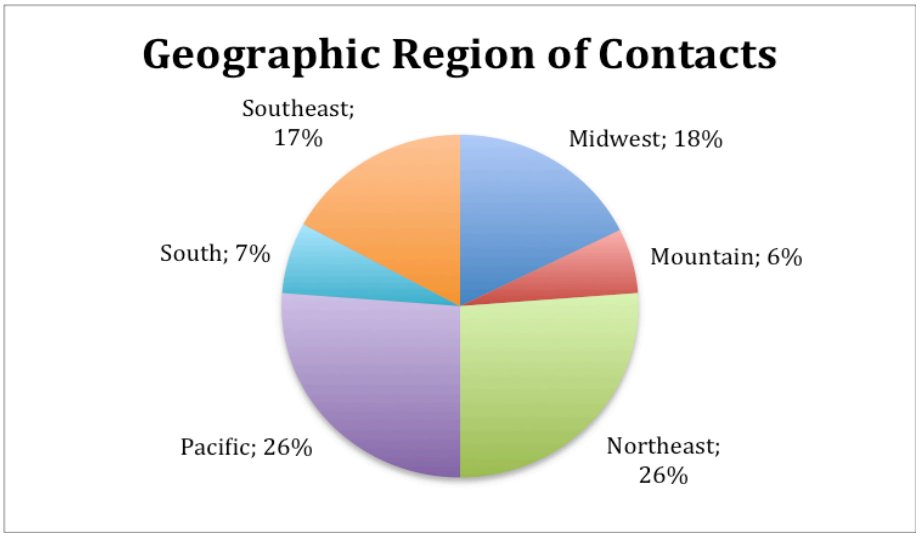

Figure 4- Contacts by Region (Two)

Figure 5 illustrates the population profiles of the communities contacted for this survey. The majority of contacts were made to planners in small towns, cities, and counties (1,001 to 25,000). This could indicate that communities with Farm to

School Programs are generally medium-rural. Few communities with very small or large populations were contacted.

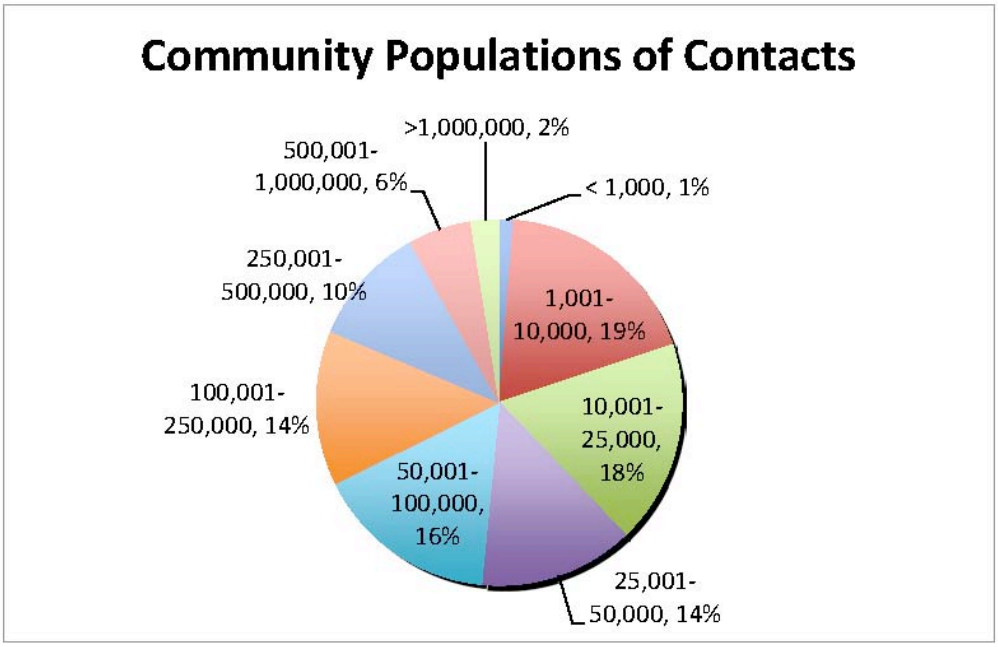

Figure 5- Contacts by Community Population (Two)

It was also expected that there would be some overlap between this survey's sample respondents and the previous survey's sample respondents because 72 communities were contacted to fill out both surveys. The literature indicated that communities who are employing agricultural sustainability initiatives may also consider Farm to School Programs as a tool or, conversely, if a Farm to School Program exists in a community it may be supported by larger agricultural initiatives.

Implementation

A professional membership was purchased from Survey Monkey, an online survey tool, to conduct the surveys. After contacts were found for each population

and the survey questions were finalized, an initial introductory e-mail contact was sent to the respective populations to describe the project and request the planners' participation. A link to a specific survey (either the community agricultural sustainability survey or the Farm to School survey) was included within the e-mail. The participants were given two weeks to complete the survey and an e-mail reminder was sent a week after the initial e-mail.

Threats to Validity

Response Rate

The response rate from internet-based surveys is a threat to the validity of the findings. It is well known that the mode of the survey measurably affects response rates so survey mode selection is of utmost importance (Kroth et al., 2009). However, even though studies measuring response rates between paper-based and internet-based surveys have seen mixed results in the past, recent studies have shown an increase in internet-based response rates compared to paper-based response rates (Greenlaw and Brown-Welty, 2009). Also of consideration is cost, both in time and money. Internet-based surveys may have a higher time cost upfront through online survey entry, but paper-based surveys have a larger monetary cost in postage and mailing materials (Greenlaw and Brown-Welty, 2009). Given the budgetary constraints of this project, an internet-based survey mode was the most cost and data-analysis efficient (Kroth et al., 2009).

Results

Response Rate

Given the survey mode, the response rate of the two surveys was not as high as expected when compared with response rates from other academic surveys. In the community agricultural sustainability survey, which was sent to 911 planners or communities, 241 planners responded. This number yielded a response rate of 26.5 percent. The Farm to School survey was sent to 163 planners or communities and 41 planners responded, which yields a response rate of 25.2 percent.

However, the response rate does not capture the true percentage of responses from the number of planners or communities that were actually contacted. Having to rely primarily on an Internet search for e-mail addresses, some bounced back or were sent to the wrong person. There is no way of knowing how many surveys were sent to the wrong person, but the number of bounced-back e-mail addresses were recorded. Thirty-three addresses bounced back for the community agricultural sustainability survey, bringing the response rate to 27.4 percent, and four addresses bounced back for the Farm to School survey, bringing that response rate to 25.7 percent. Both rates are a slight improvement on the previous response rates.

A study conducted by Michigan State University found that a survey distributed strictly by e-mail could expect a response rate of around 20 percent (Kaplowitz et al., 2004). MSU's survey was sent to a respondent group that uses the

Internet and e-mail regularly, which can also be assumed of the populations in this research. The results support mixed-mode survey designs, which employ both surface mail distribution or reminders and e-mail distribution or reminders. When a mixed-mode surveying method was used the response rate improved by almost nine percent (Kaplowitz et al., 2004). However, due to cost and time restraints, an Internet only mode was the sole choice available for the two surveys in this research.

Figure 6 and Figure 7 illustrate the complexities of each survey's response rate and why both rates are threats to validity for this research. Figure 6 shows how one of the survey questions removes 80 percent of the respondents so only 46 respondents actually take the full survey. Those 46 are then split down two separate survey paths with different questions. Due to answer choice selection to the question prior to the split, only six respondents answer the questions down one survey path and the remaining 40 answer the questions on the other survey path. Since respondents were able to skip questions within the survey, not all questions have the full number of respondents that should have been answering that particular question.

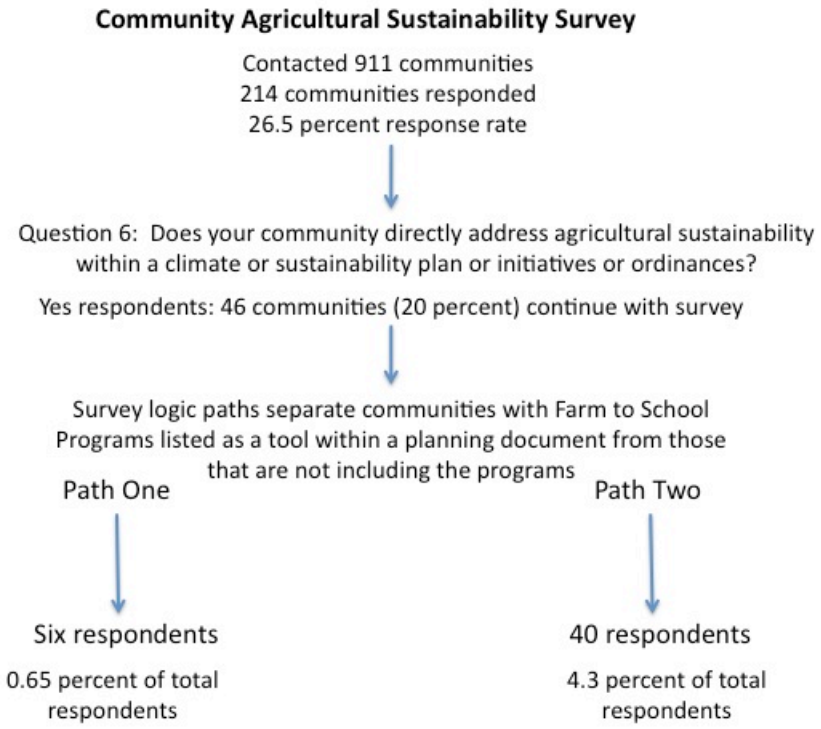

Figure 6- Response Rate Flow Chart

Figure 7 displays the separate survey path respondent percentages within the Farm to School survey. Whether respondents knew if their community had a Farm to School Program prior to the survey determined which survey path questions they subsequently answered. Eleven respondents knew of their community's program prior to the survey and answered the questions down one path and the remaining 30 respondents who were not aware of the programs answered the questions down the second path.

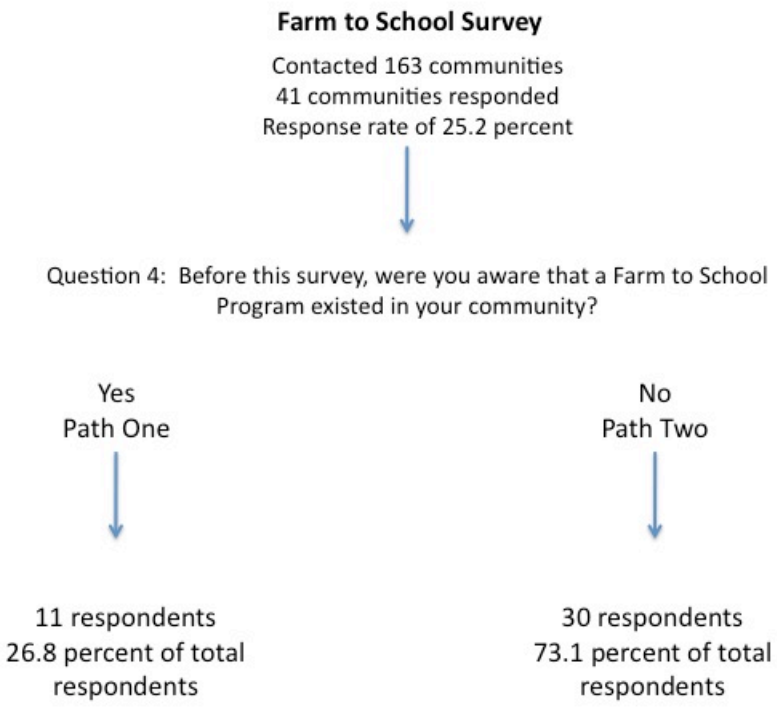

Figure 7- Response Rate Flow Chart

Limitations of Analysis

The analysis of the results was limited by the response rate, lack of respondent overlap, and inability to control who answered the survey or to verify responses with another form of evidence (e.g. a plan or ordinance). The majority of the following analysis relies on summary statistics that calculate the percentage of respondents for each question and how the response relates to the research questions. A comparison of the two surveys was not possible due to the lack of overlap of respondents. Seventy-two communities were contacted to fill out both surveys but only one community responded to both. As discussed previously, the

literature that led to this research project indicated that agricultural sustainability planning and initiatives are being promoted by the APA (2007), but it is not clear whether numerous communities are pursuing them across the country. The sample respondents from these populations suggest that the agricultural sustainability guidance has not yet permeated community-planning activities.

Community Agricultural Sustainability Survey

The survey began by asking demographic questions to record which communities participated in the survey and to ascertain the job title of the respondent. Figure 8 displays the percentage of respondents from specific geographic regions identified by the U.S. Census Bureau. As the figure shows, the Midwest had the highest percentage of respondents at 27 percent, and the Northeast, Pacific, and Southeast are close at 18 percent, 19 percent, and 18 percent, respectively. A list of the respondent state locations detailing their specific region can be found in Appendix B. The percentage of responses for each geographical region corresponds with the geographical region for the contacts as displayed in Figure 2.

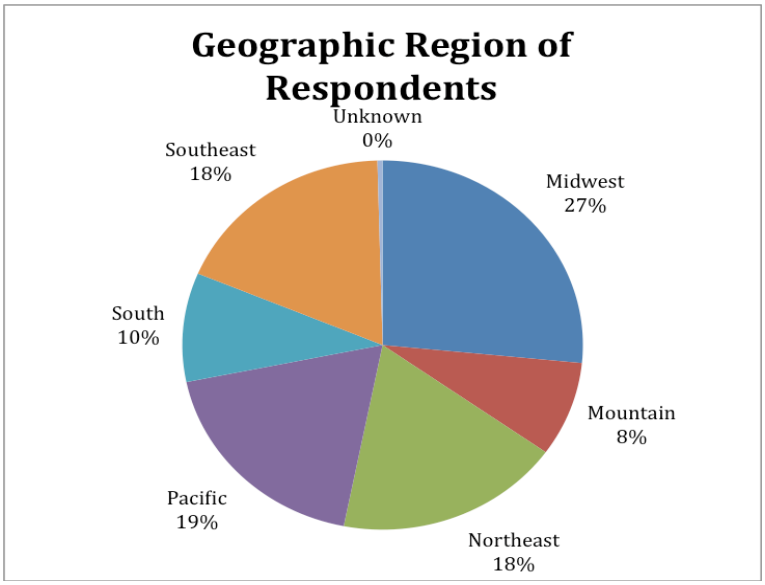

Figure 8- Respondents by Geographic Region (One)

Figure 9 illustrates the respondents by region (color coded to the previous figure) and gives the total number of responses by state. Colorless states are those without responses. Most responses within the Pacific region came from California, in the Northeast from New Jersey, and the Southeast from Florida. The higher number of responses from these three states indicates possible bias.

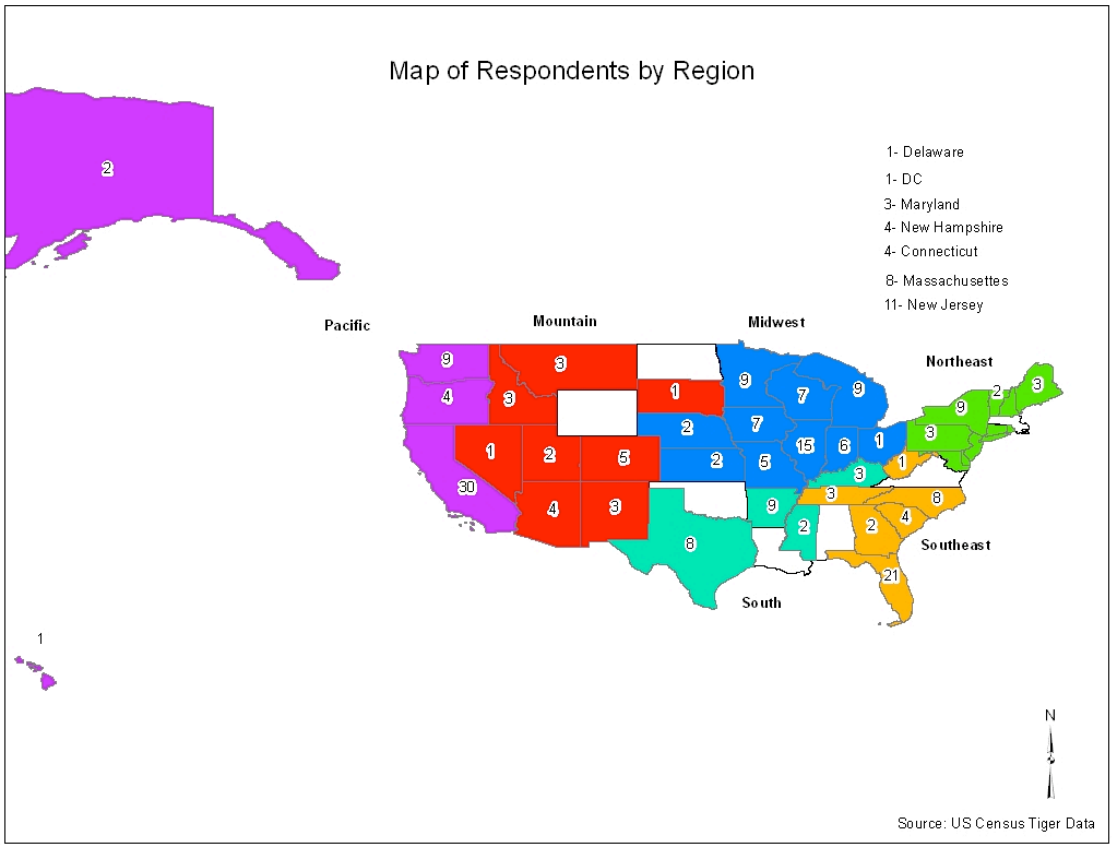

Figure 9- Respondents by Region and State

Figure 10 displays the community populations of the respondents. The majority of those who responded were from communities with populations between 25,001 and 50,000 people. Three percent of communities have populations less than 1,000 and one percent (two communities) have populations over 1,000,000. These statistics also correspond with the population profile of the contacts.

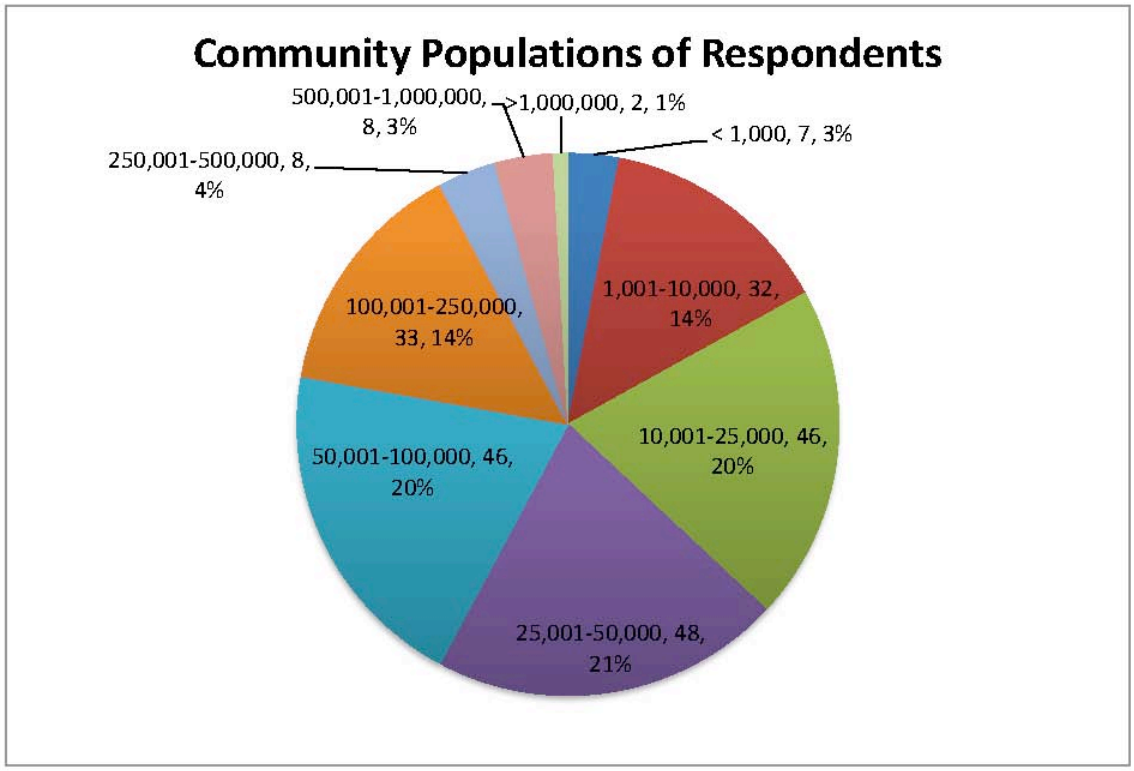

Figure 10- Respondents by Community Population (One)

Non-respondent Characterization

Characterizing those who did not respond to the survey reveals non-response bias. Figure 11 displays the geographic area of the non-respondents. Because the majority of contacts for this survey were made to communities in the Northeast and Pacific regions it makes sense that the majority of non-respondents would be from those areas (these are also areas with the highest percentage of respondents). The remaining regions also correspond to the region contact percentages for this survey.

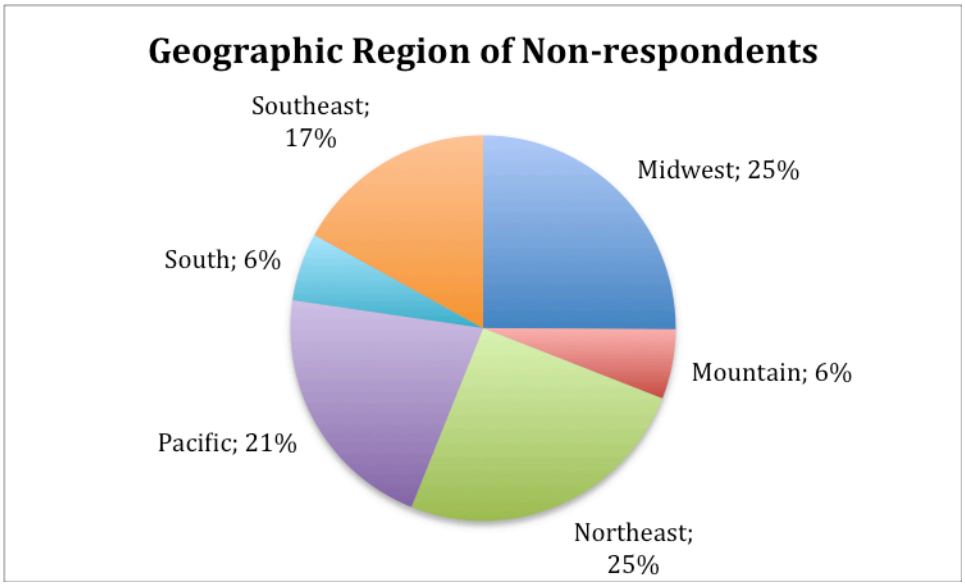

Figure 11- Non-respondents by Region (One)

Figure 12 shows the community populations of the planners who did not respond to this survey. As with the regional characterization, the non-respondent community populations also correspond with the contact populations. The majority of non-respondents live in cities with populations between 25,001 and 100,000 people. That communities within this population range did not answer the survey could mean that these communities are not planning for agricultural sustainability or they did not have time to answer the survey due to smaller staffs and increased job responsibilities.

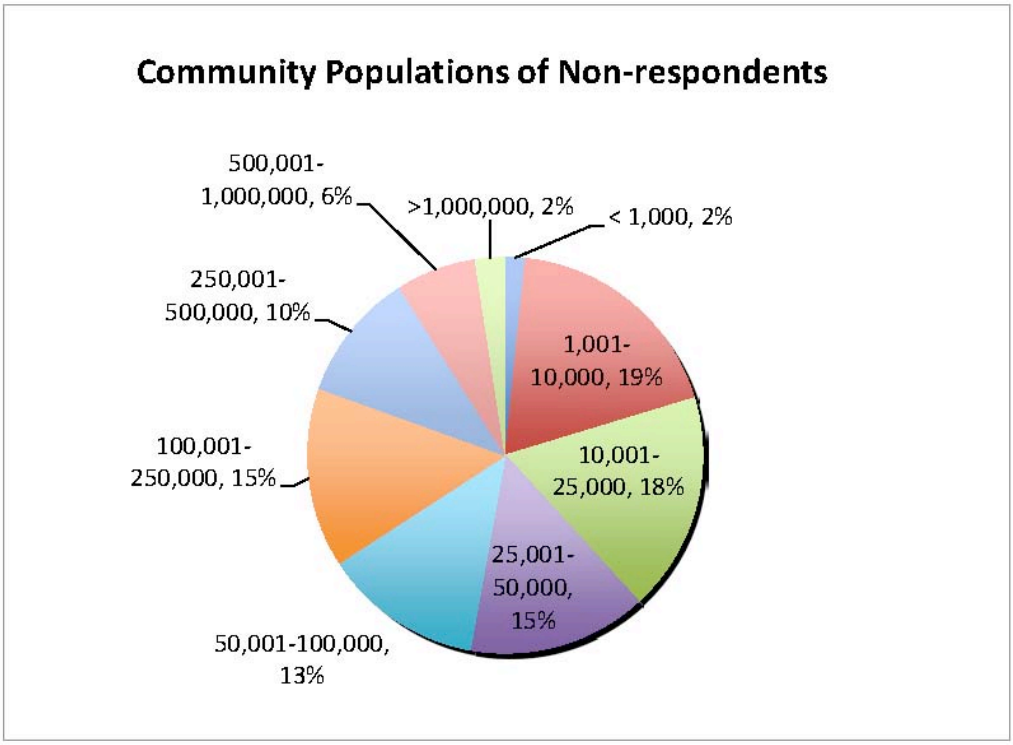

Figure 12- Non-respondents by Community Population (One)

Survey Responses

To begin answering this project's research questions, the first question asked respondents to characterize the type of sustainability initiatives the community planned for or currently employs. Approximately 79 percent of respondents reported that some sort of sustainability initiative, tools or ordinances are employed or planned for in their communities, while 18.4 percent have a stand-alone climate action plan and 19.7 percent have a stand-alone sustainability plan. Approximately 19 percent reported in the "Other" category with the option to specify. The majority of these respondents reported that their community is either currently writing a sustainability plan or initiatives (but it is unclear why they did not want to commit

to one of the other categories) or their community has sustainability initiatives but they do not fall into the example categories that were given in the initiatives, tools or ordinance options. Approximately nine percent of respondents reported not having a climate action plan, sustainability plan, or sustainability initiatives. These respondents were skipped to the end of the survey. A chart displaying responses can be found in Figure 13.

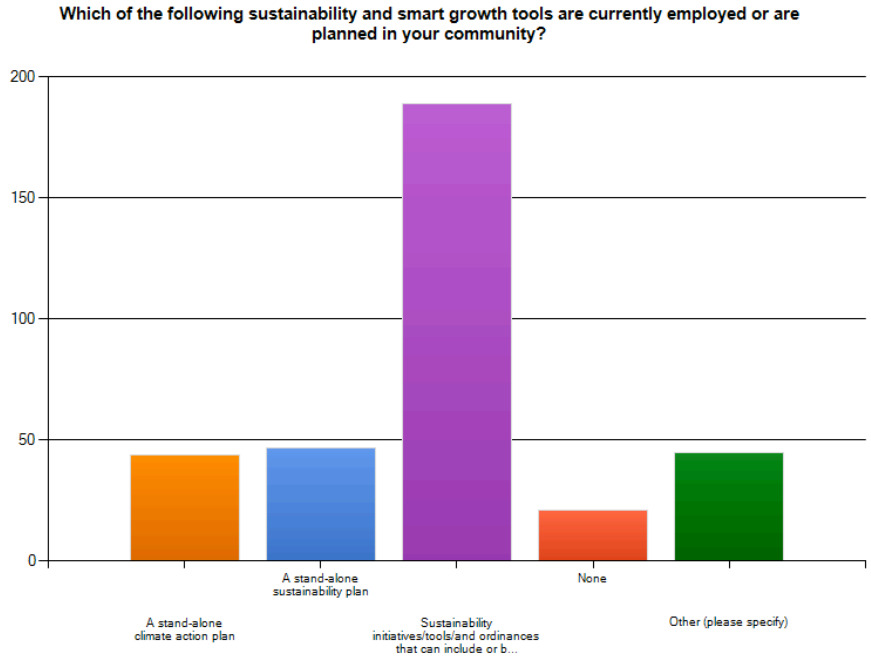

Figure 13- Sustainability Plans

Respondents whose communities had a climate action plan, sustainability plan, or sustainability initiatives were then asked if their plan or initiatives directly addressed agricultural issues. Forty-six people, or 20 percent, responded "Yes" and 80 percent responded "No". Those who responded "No" were skipped to the end of the survey. The geographic regions of the "Yes" respondents can be found in Figure

14. The majority of respondents from communities currently planning for agricultural sustainability are located in the Northeast, with the Pacific region having the second highest percentage of responses.

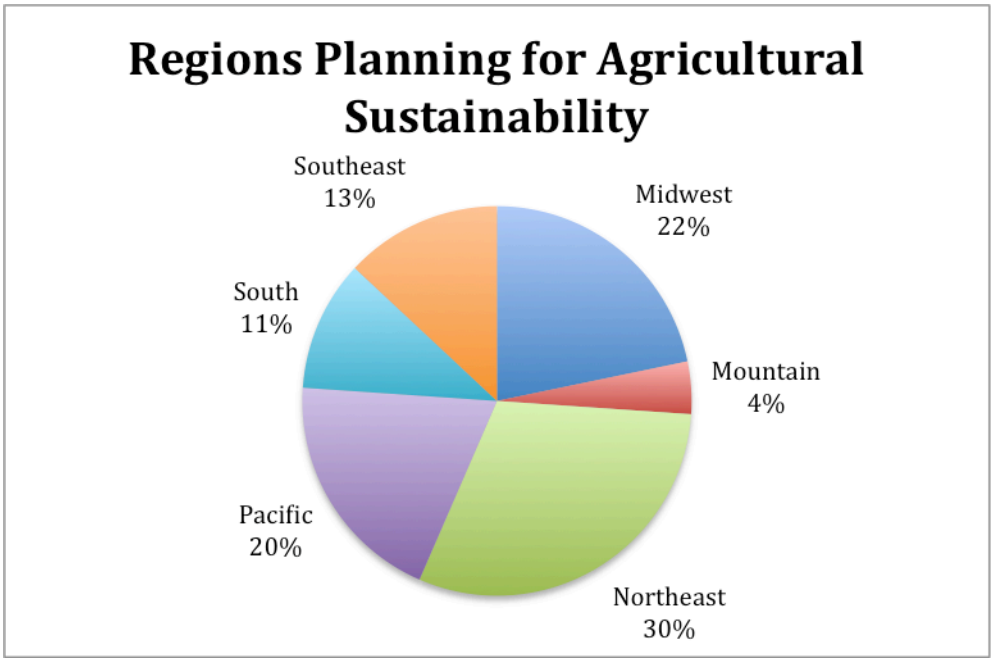

Figure 14- Agricultural Sustainability Planning by Region

To provide information as to the agricultural background of these regions, the USDA's 2007 Agricultural Census was used to determine the number of farms and amount of farmland in each state and then each region. A full record of the numbers can be found in Appendix A.

Despite the fact that it is the region with the lowest number of farms, the Northeast respondents were the majority of those planning for agricultural sustainability. This could be an indication of the urbanization or general state and region size, meaning that because the Northeast has a large concentration of sizeable cities they are forced to protect agricultural land against increased

suburbanization. The Midwest has the second highest percentage of respondents in communities planning for agricultural sustainability, which corresponds with that region's large number of farms.

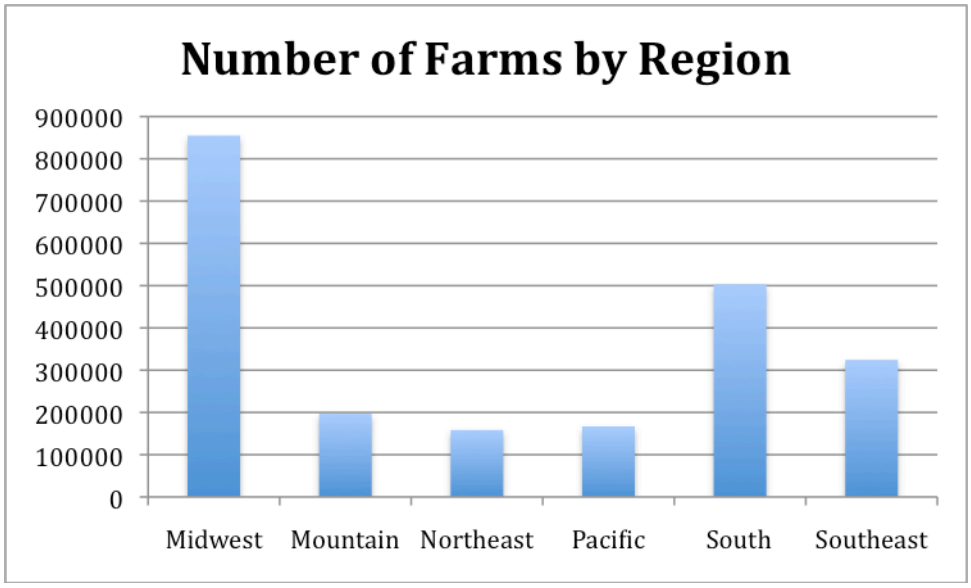

Figure 15- Number of Farms

Figure 16 displays the amount of farmland in each region by acreage. The Midwest again corresponds with responses regarding agricultural sustainability, but the Mountain region has almost as much land in farms yet responded with the lowest percentage regarding agricultural sustainability. This could be a reflection of the size and expansion of the region- that there are not many farms relative to other regions but the farms are quite large due to the amount of open and available land. This availability of open land may also have led to a distinct separation of rural and urban land uses in this region, which is why community planners are not including agricultural issues within plans or ordinances.

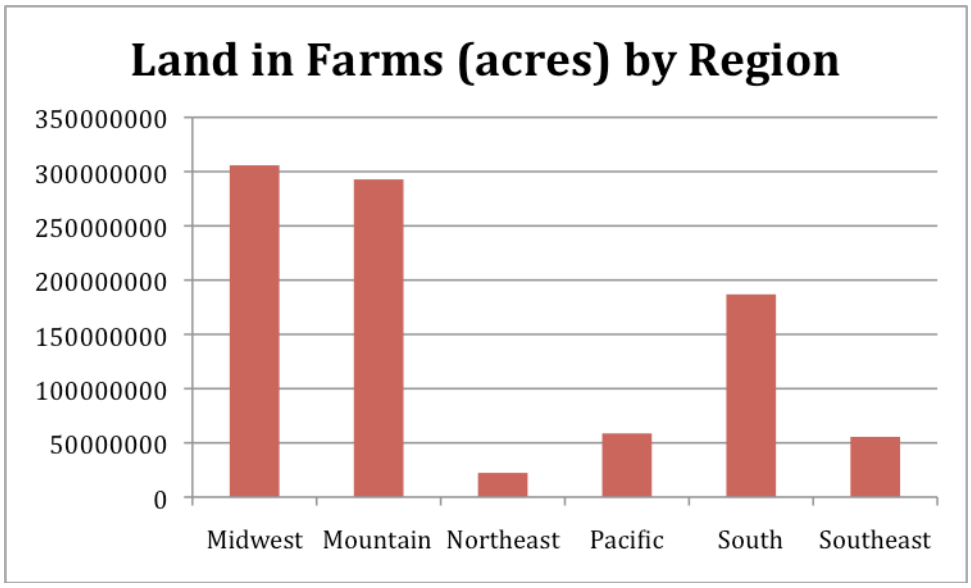

Figure 16- Land in Farms

Farm to School Programs as an Agricultural Sustainability Tool

The next question asked respondents to identify all of the types of agricultural tools employed within their plans or initiatives. Farm to School Programs were a possible tool choice. Approximately 13 percent of respondents chose Farm to School Programs as a tool in their plan or ordinance and these respondents were taken on a separate survey path from those that did not choose the programs. The breakdown of choices can be found in Figure 17. These agricultural tool choices were based on local government sustainability efforts as documented by Devashree Saha and Robert Paterson, as well as Edward Jepson in "The Adoption of Sustainable Development Policies and Techniques in U.S. Cities: How Wide, How Deep, and What Role for Planners?" (Saha and Paterson, 2008; Jepson, 2004). Known local food movement initiatives, such as zoning for farmers'

markets, as well as tools discussed by Vallianatos et al. regarding planning for Farm to School were also included (Vallianatos et al., 2004).

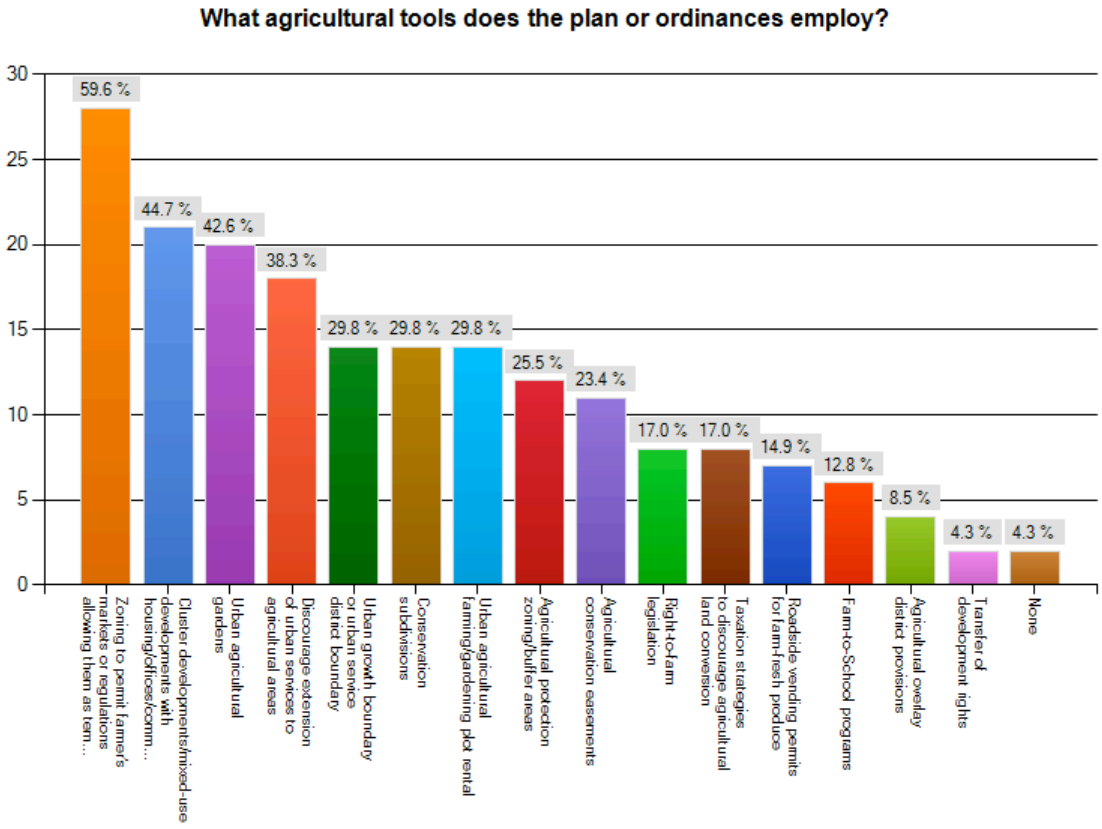

Figure 17- Agricultural Sustainability Planning Tools

Of the six respondents who have integrated Farm to School Programs as a tool within a plan or ordinance, two are from the South and four are from the Northeast. To illustrate this inclusion, the city of Montpelier, Vermont has incorporated the programs as a tool in the draft of the city's Community Action Plan. Within the document's Infrastructure and Built Environment section, the city has incorporated a food section that addresses goals and objectives for the city to become more food independent and sustainable. "Increasing direct purchasing between Washington

County farmers and Montpelier restaurants; groceries; and municipal, medical, and educational institutions" is listed as one of the strategies to meet the target goal of sourcing local food (Montpelier, 2010).

The respondents with Farm to School Programs included within a plan or ordinance were then asked if a program or programs currently exist in their community or if they know if there are plans to start one. Approximately 54 percent answered yes, there is currently a program or plans to start one. Another 18.2 percent responded no, and 27.3 percent answered that they did not know. Those who answered affirmatively were then asked how the respondent or their department played a role in starting this program. The answers to this question gauged whether the planners were playing an active or a passive role in program creation. An example of an active role choice is to raise money or speak to stakeholders regarding the program, while a more passive role is planning for certain land use tools that indirectly sustain Farm to School Programs, such as the protection of farm land through agricultural districts. A little over 28 percent of respondents answered that they played an active role in program creation by promoting the programs among stakeholder groups. The various role choices can be found in Figure 18 on the following page.

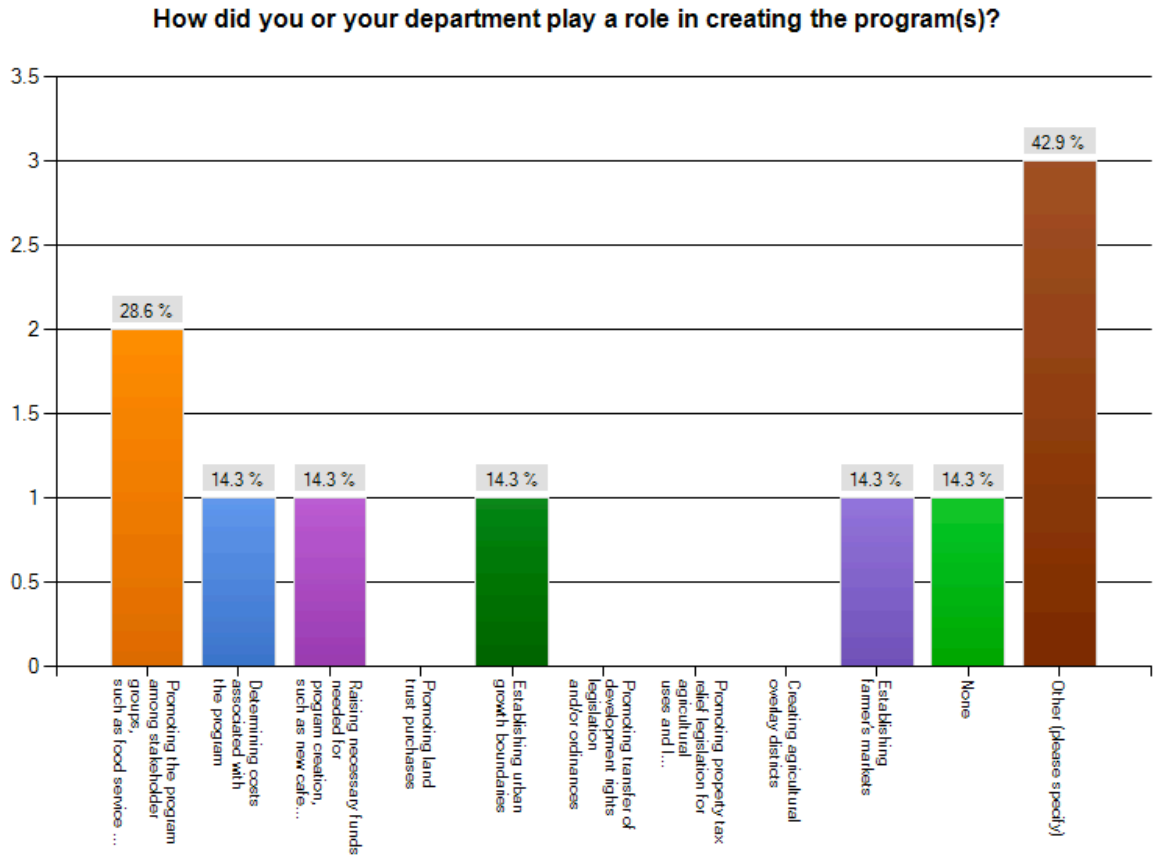

Figure 18- Roles in Farm to School Program Creation

Respondents who answered negatively to one of the following: a Farm to School Program, or plans to start a program in their communities, or that they did not know if there were programs or plans to start one were asked what sort of action they or their departments were taking to ensure that a program could start in their community. Thirty three percent answered that they or their departments were promoting the programs among stakeholder groups and another 33.3 percent answered they or their departments were establishing farmers' markets, which

provides an additional outlet for sale of locally-grown products. However, the majority of planners in communities without an active program or those who are not sure if a program exists have not played a role in ensuring program creation. Role choices came from "Farm-to-Cafeteria from a Community Organizer Perspective" and "Linking Farms with Schools", which provides guidance on various roles individuals can take when starting a Farm to School program in their area. Land use roles choices were taken from Vallianatos et al. (2004). These roles can be found in Figure 19.

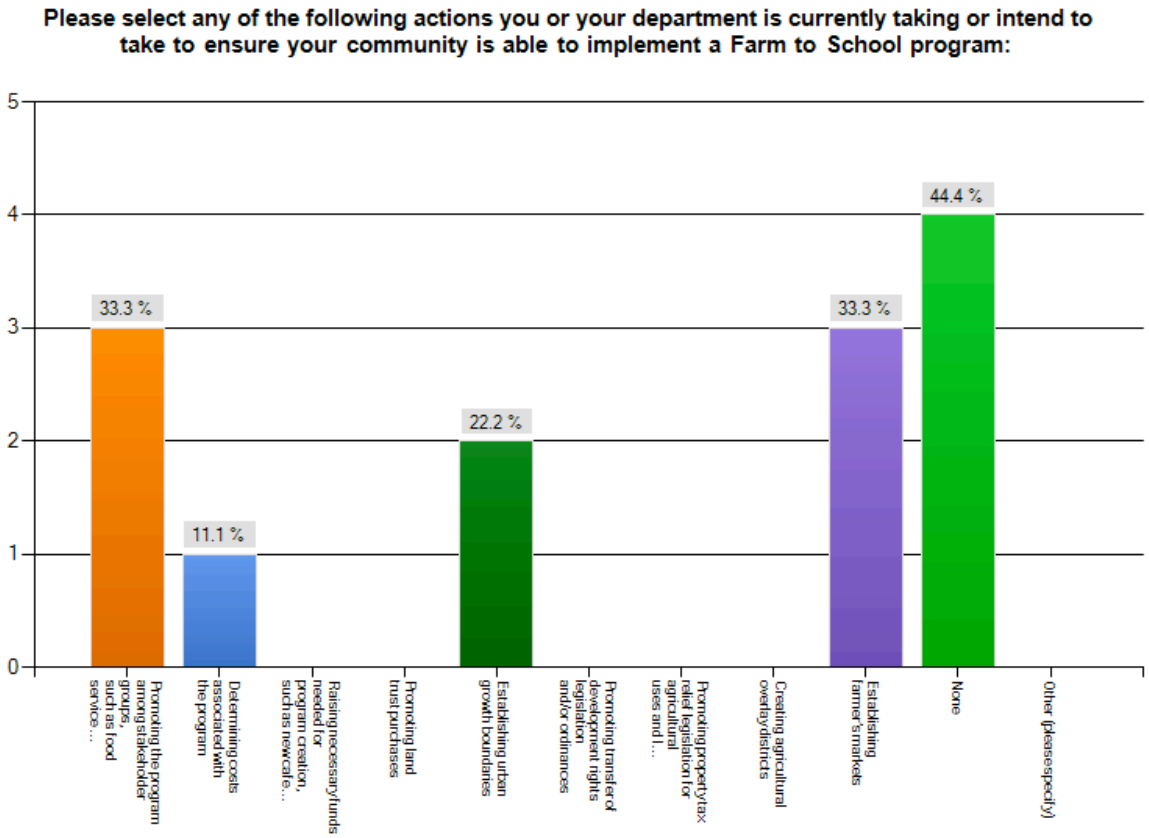

Figure 19- Potential Roles for Program Implementation

Respondents were then asked why Farm to School Programs are included within their climate action plan, sustainability plan, or sustainability initiatives with the option to choose all that apply. The majority or respondents (75 percent) cited that the programs promoted healthy eating habits among children as a reason the programs were included. Other top reasons included the fact that the programs provide economic support for local farmers and build a stronger community by supporting local business, as well as and provide healthier food alternatives for children. These choices imply that the programs are being included based on community health- primarily for children, and to provide a market and support for local farmers. These reasons support the social equity and economic tenants of sustainability. All of the possible reasons for program inclusion can be found in Figure 20 on the following page.

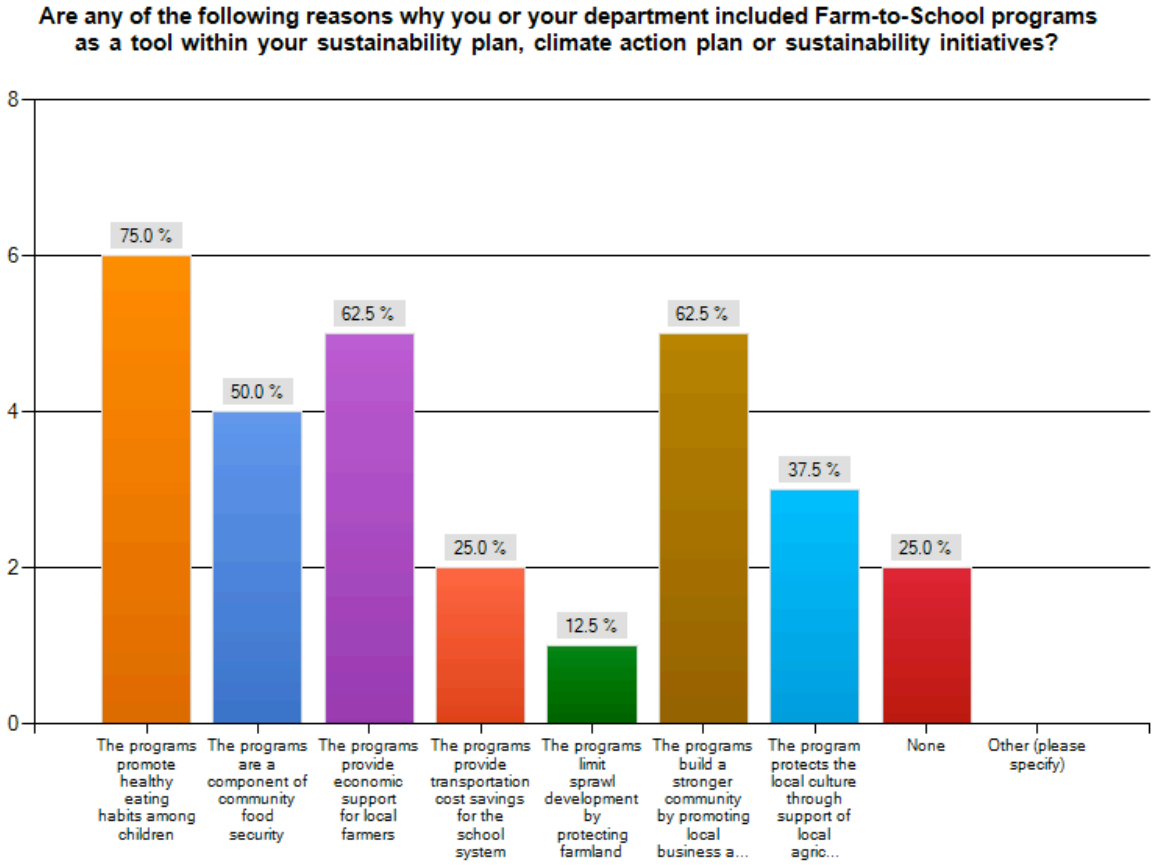

Figure 20- Reasons for Program Inclusion

Because there may be obstacles to inclusion of Farm to School Programs or barriers to the creation of these types of programs, respondents were asked about any barriers they or their department may have experienced when including the programs within their climate action plan, sustainability plan, or sustainability initiatives. Over 28 percent cited the lack of zoning as a barrier to inclusion, meaning that there is no protection for agricultural land uses and therefore no limitation to sprawl or type of development. Almost 43 percent cited "Other" as an obstacle with one particular respondent specifying "none to date", which should

have been answered under the "None" category. The loss of farmland and lack of interest from farmers were not cited as barriers, which is surprising based upon the literature that cited the loss of farmland as being a threat to sustainability. Lack of zoning and other choices for obstacles to inclusion can be found in Figure 21.

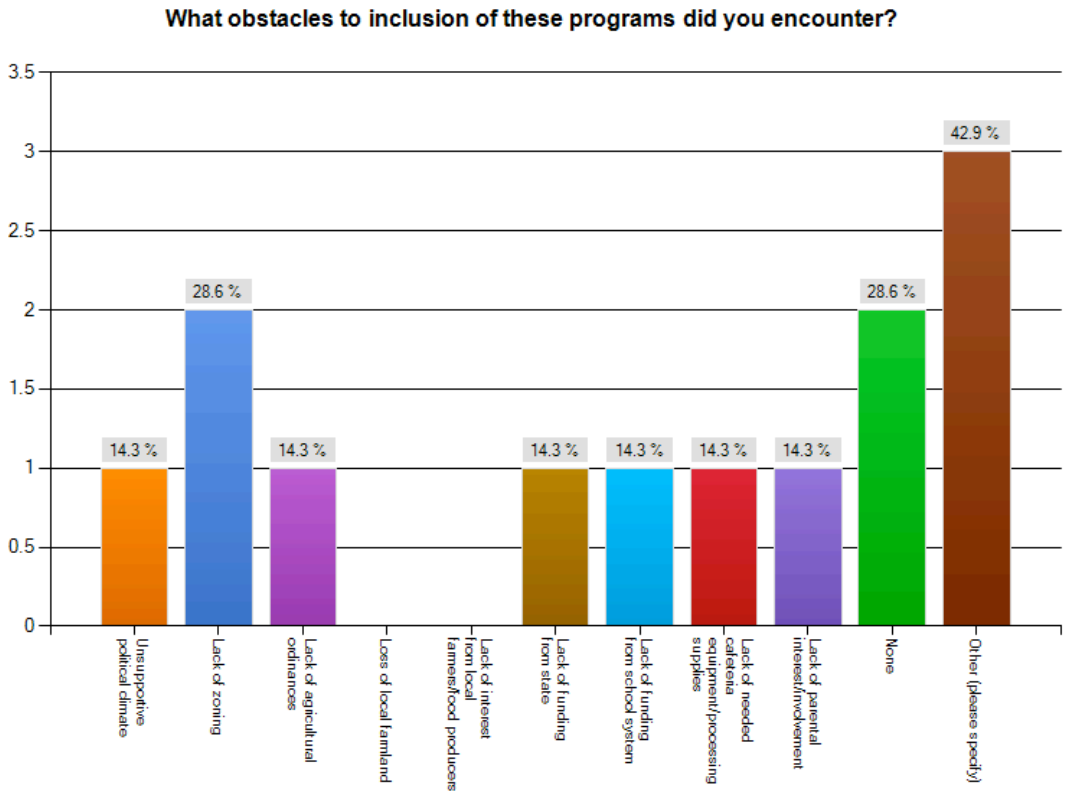

Figure 21- Obstacles to Inclusion of Programs

The respondents were then asked if there were any measurable or marked differences in their communities since the implementation of the programs. The attributes found in Figure 22 were given as choices and respondents could choose more than one. Approximately 43 percent responded that there is a stronger sense of community as a result of supporting local farmers and promoting community

health since the implementation of the program(s). This coincides with Figure 20, which found a stronger sense of community as a reason for including the programs within a climate action plan, sustainability plan, or sustainability initiatives.

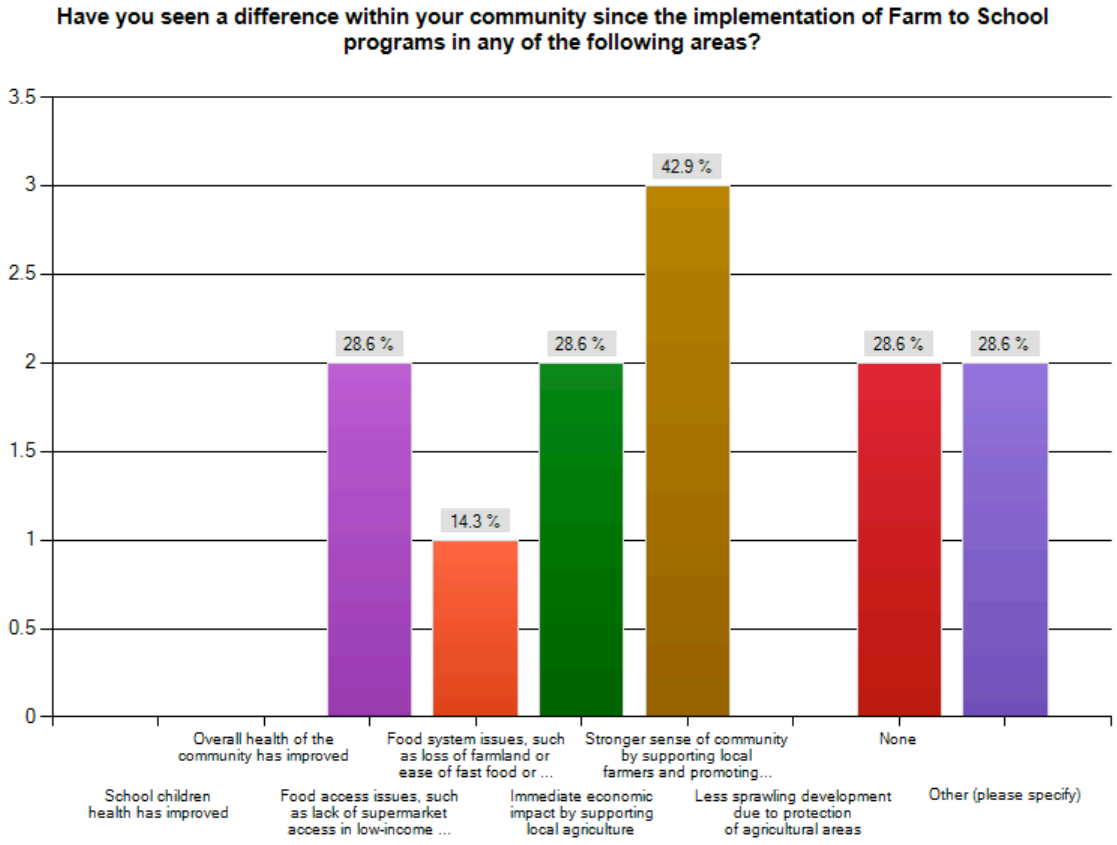

Figure 22- Differences within Community since Program Implementation

Future Inclusion of Farm to School Programs

Respondents who did not cite Farm to School Programs as a tool planned for or employed within their community (Figure 17) were asked if the programs are a tool they would consider including within their climate action plan, sustainability plan, or sustainability initiatives in the future. Approximately 84 percent responded

"Yes", they would consider using the programs in the future and 16 responded "No". Figure 23 displays the geographic regions of the respondents. A quarter of those who answered that they would consider using Farm to School Programs as a tool for sustainability were from the Northeast. Another 28 percent of respondents were from the Pacific region and 22 percent were from the Midwest. These three regions currently have active Farm to School Programs (as discussed in the following section), so perhaps in these areas the programs are more readily supported by the public and government.

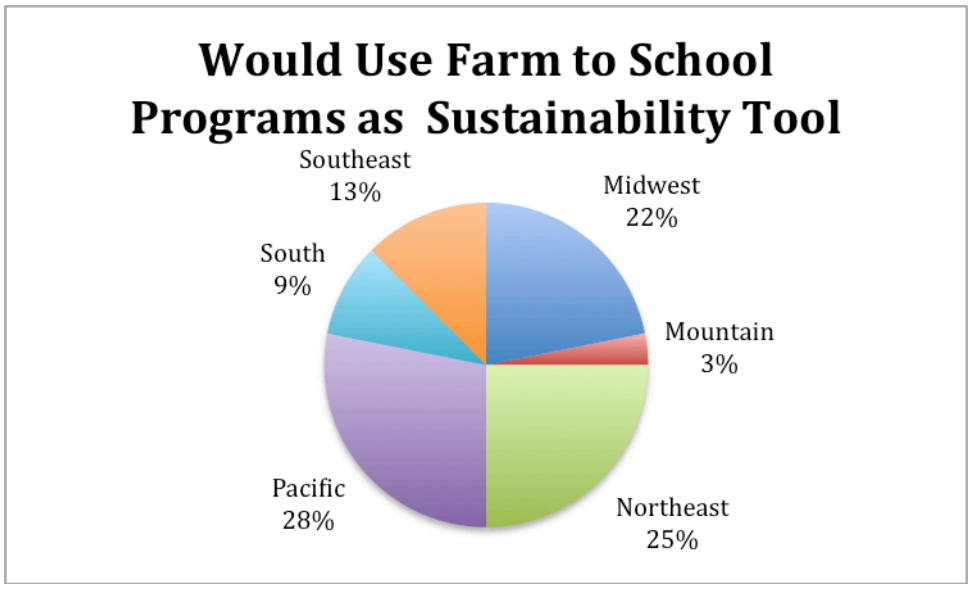

Figure 23- Potential Inclusion of Programs by Region

Those who responded "Yes" to the previous question were asked about the reasons they would use the programs in the future. Figure 24 displays the reason choices and percentage of respondents. In parallel to respondents who answered the similar question in the other survey path, a large percentage of respondents here (84 percent) answered that they or their departments would consider using

Farm to School Programs as a tool within a sustainability plan, climate action plan, or sustainability initiatives because they build a stronger community through the support of local farms and provision of healthier food options for children.

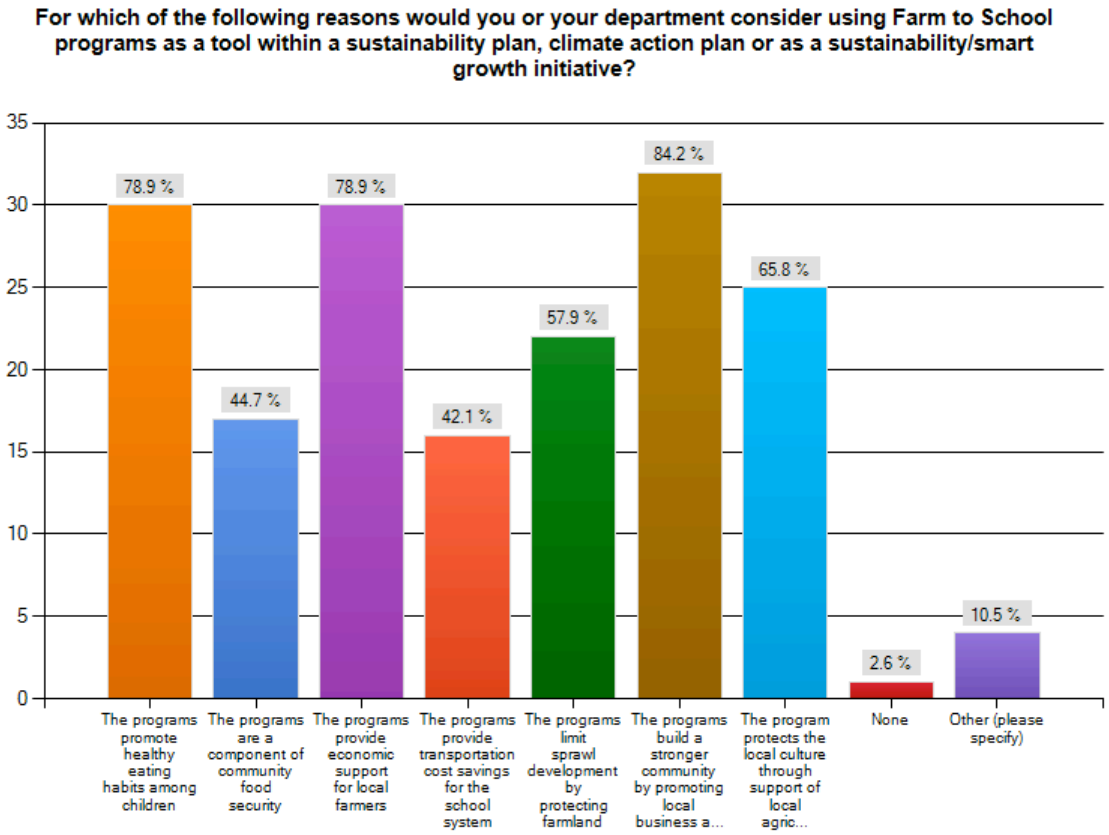

Figure 24- Reasons for Use

Respondents who took the other survey path because they are not currently including or planning for Farm to School Programs were asked what sort of scenarios or barriers to inclusion they or their department may experience if they tried to incorporate the programs within a plan in the future. These obstacles may also be reasons why they would not even consider planning for the programs in the future. Figure 25 displays the obstacle choices and percentages of responses. The

lack of funding from the school system for the programs had the highest percentage of responses (47 percent) and the other funding options were also frequently chosen. In the "Other" category many respondents specified the lack of agricultural land from the urbanization in their community as an obstacle, as well as the separation of their community's government from school system operations as another barrier.

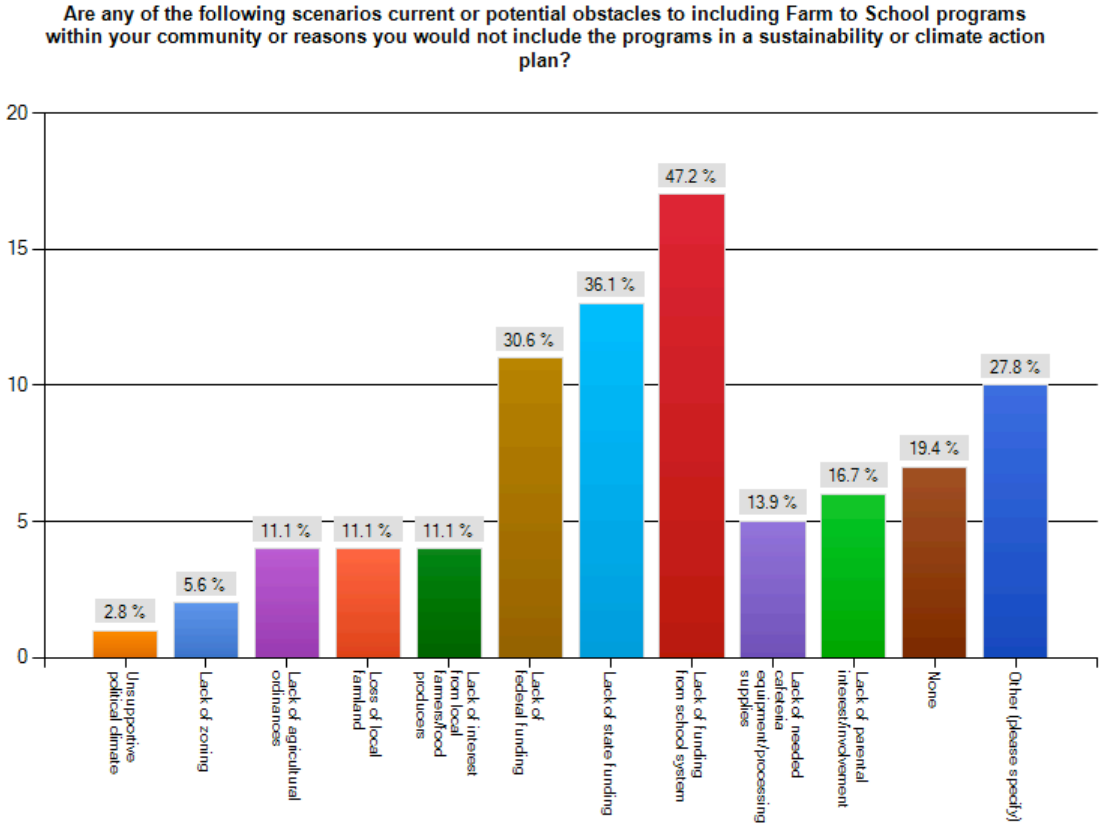

Figure 25- Potential Obstacles to Inclusion

Summary

Many communities who are striving towards overall sustainability are not planning for agricultural sustainability. Those who are incorporating agricultural

issues into plans are mainly doing this through zoning for farmers' markets. However, many communities who are not currently planning for Farm to School Programs would be willing to do so in the future, mainly through passive roles, such as the support of agricultural land use policies. The majority of respondents would support and include these programs because the programs support healthy eating habits and provide economic support for local farmers.

Farm to School Survey

Like the previous survey, demographic questions to determine location and title of the respondent were asked at the beginning of this survey. Figure 26 displays the geographic region of the respondents. At 32 percent respectively, both the Pacific and Southeast had the highest percentage of respondents. The Northeast had the next highest response percentage at 14 percent.

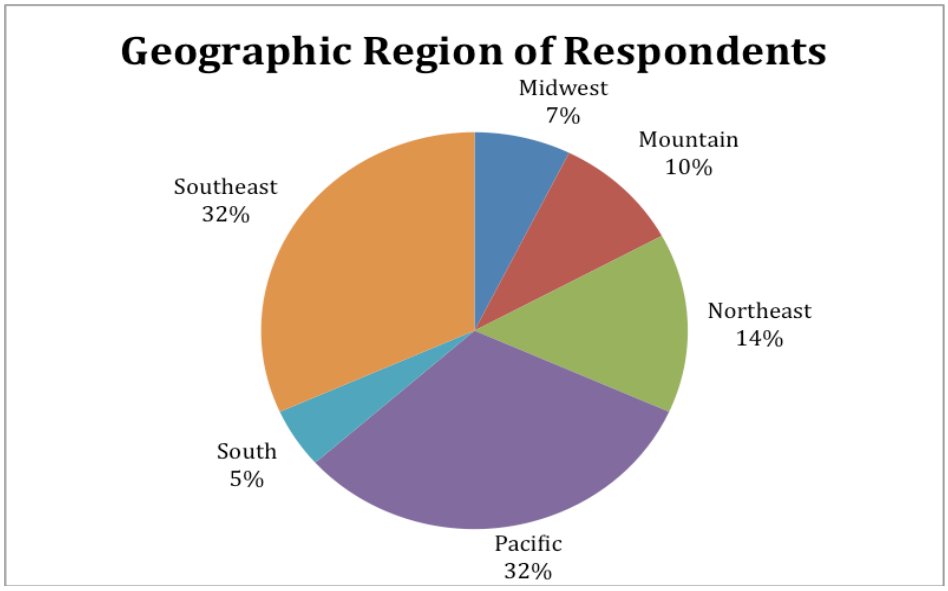

Figure 26- Respondents by Region (Two)

Figure 27 illustrates the respondents by region and state, with the number of respondents from each state displayed on the state. The respondent count for each state is mostly even within each region, except for California (Pacific region) and Virginia (Southeast region). The higher number of responses for these states indicates possible bias.

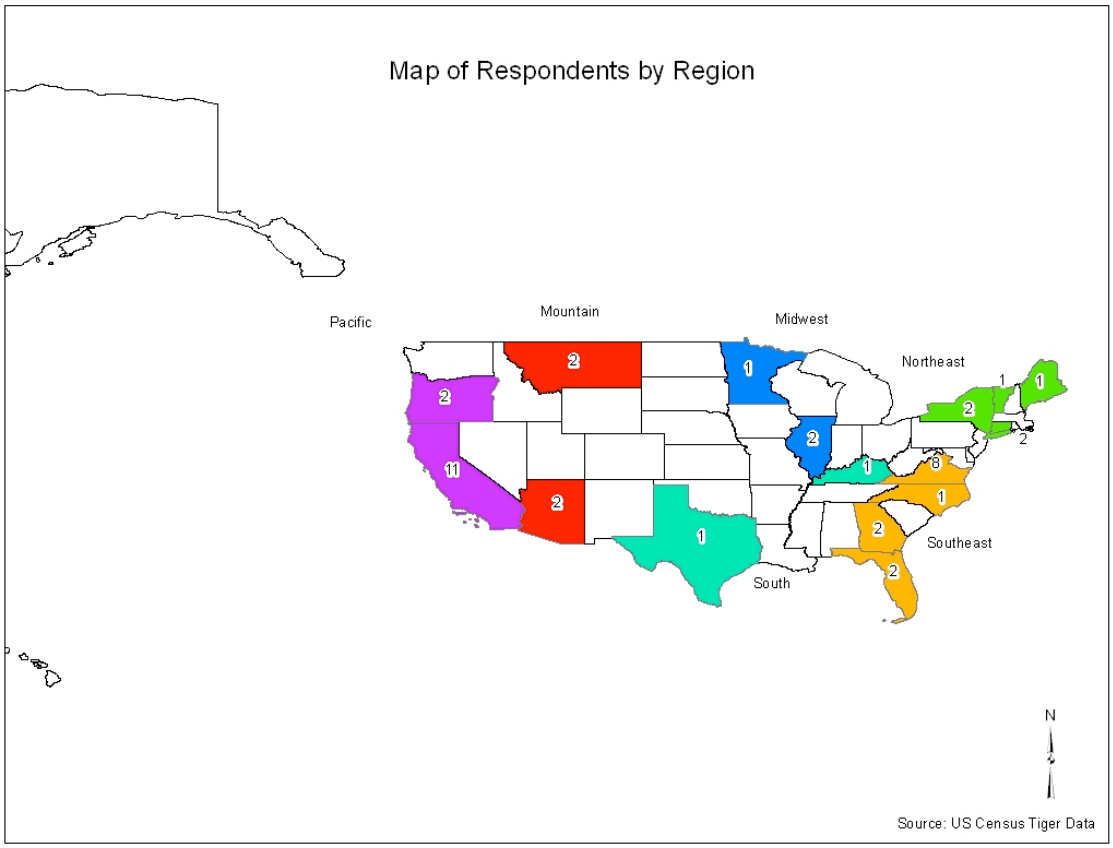

Figure 27- Respondents by Region and State

Figure 28 displays the community populations of the survey respondents. The majority of respondents are representatives for communities with populations of 50,000 to 100,000 people, which is fairly sizable and not a reflection of

communities that were contacted (Figure 5). This lack of correspondence may indicate that smaller, rural, communities are not aware of these programs or did not have time to respond due to smaller planning staffs. No respondents were from communities with populations less than 1,000 and there was one respondent from a community with a population over 1,000,000.

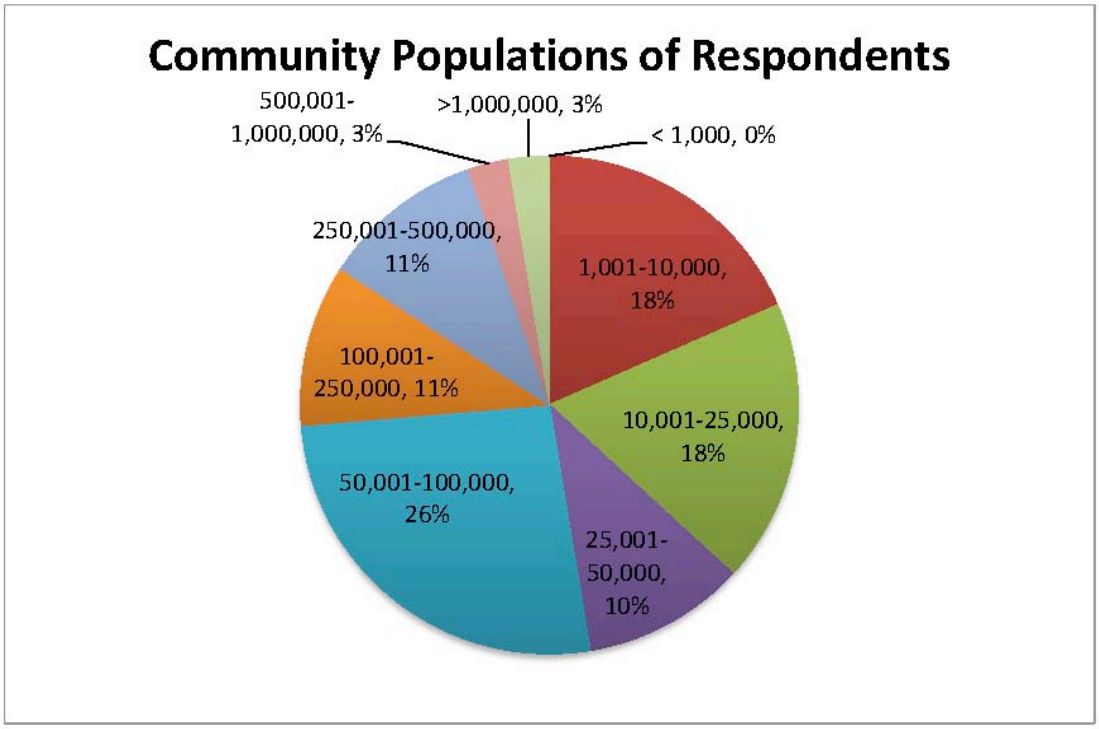

Figure 28- Respondents by Community Population (Two)

Non-respondent Characterization

Figure 29 displays the geographic areas of the non-respondents to expose possible non-response bias. This figure corresponds with the geographic region of the contacts (Figure 4), which were mainly from the Northeast and Pacific regions.

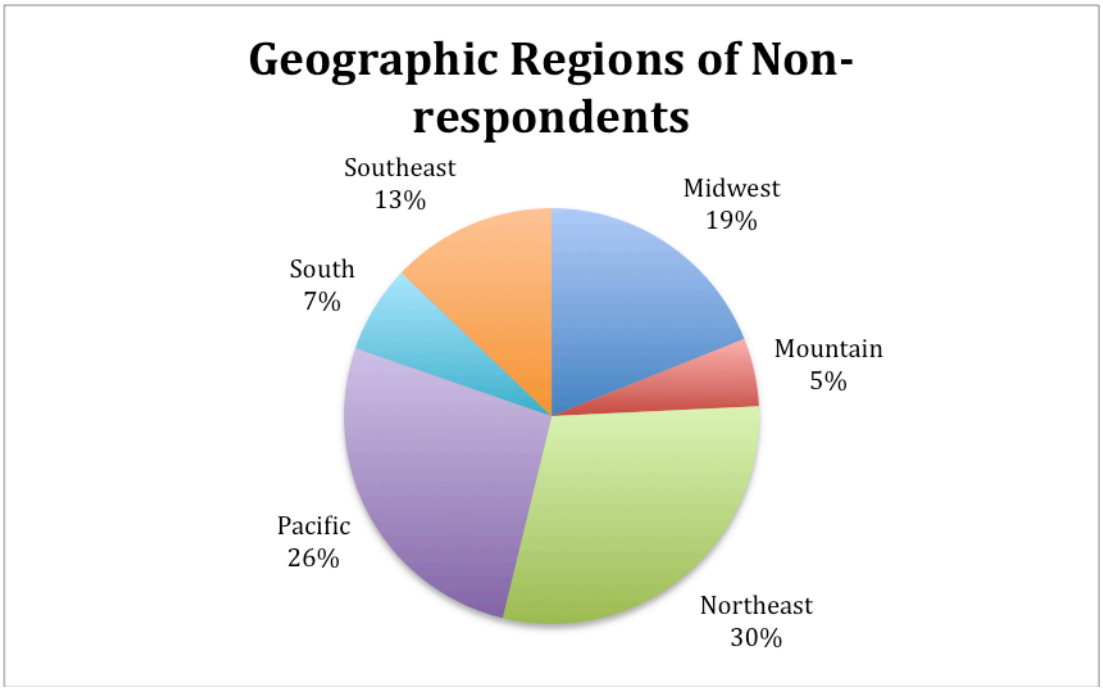

Figure 29- Non-respondents by Region (Two)

The non-respondent community populations also correspond to the populations of the communities contacted, in that the majority of those who did not respond are in small communities with populations between 1,001 and 25,000. This may also be an indication of why the population profile of respondents does not correspond to the contacts, meaning that a larger number of rural communities than medium to large size communities were contacted but these smaller communities did not respond. This non-response could be a reflection of their lack of knowledge of Farm to School Programs, or lack of time due to job responsibilities because of smaller planning staffs.

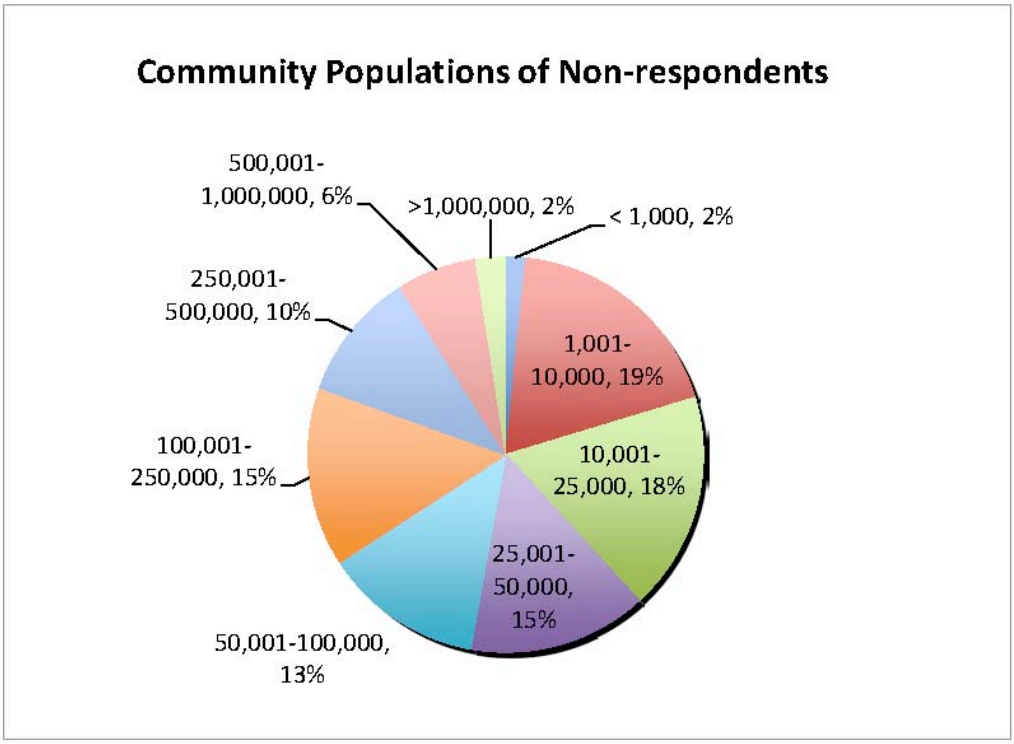

Figure 30- Non-respondents by Community Population (Two)

Survey Responses

The first question to delve into the survey subject matter asked whether the respondent knew that a Farm to School Program or programs existed in his or her community before being contacted for this survey. A little over 73 percent answered that he or she had not been previously aware of the program(s) while 27 percent (or 11 respondents) answered affirmatively to awareness. This disparity and gap of knowledge suggests that the programs can be created without the need for planner involvement. However, planners' awareness of these programs may increase their use in plans, legitimize them to the general public (as well as garner

support) and increase the incorporation of land use tools needed to sustain them (Vallianatos et al., 2004).

Previously Aware of Farm to School Programs

Respondents who answered that he or she was previously aware of their community's Farm to School Program(s) were taken down a different survey path than those who answered "No" to the same question. The "Yes" respondents (11 total) were then asked about their individual or their department's role in the creation of the Farm to School Program(s). The majority of respondents (66.7 percent) answered that they or their department did not play a role in the creation of the programs. The choices for this particular question were intended to reveal "active" role(s) planners may have played in the creation of these programs, such as raising necessary funds or promoting the programs among stakeholder groups, of which 22.2 percent (two respondents) answered that they or their department did. The specific answers listed in the "Other" category listed the support of programs through language in community growth policy and educational classes at schools that support these programs. The active role choice responses, which include promoting the programs among stakeholders, such as food service staff and local food producers, determining costs associated with the program, and raising necessary program funding, such as cafeteria equipment, can be found in Figure 31.

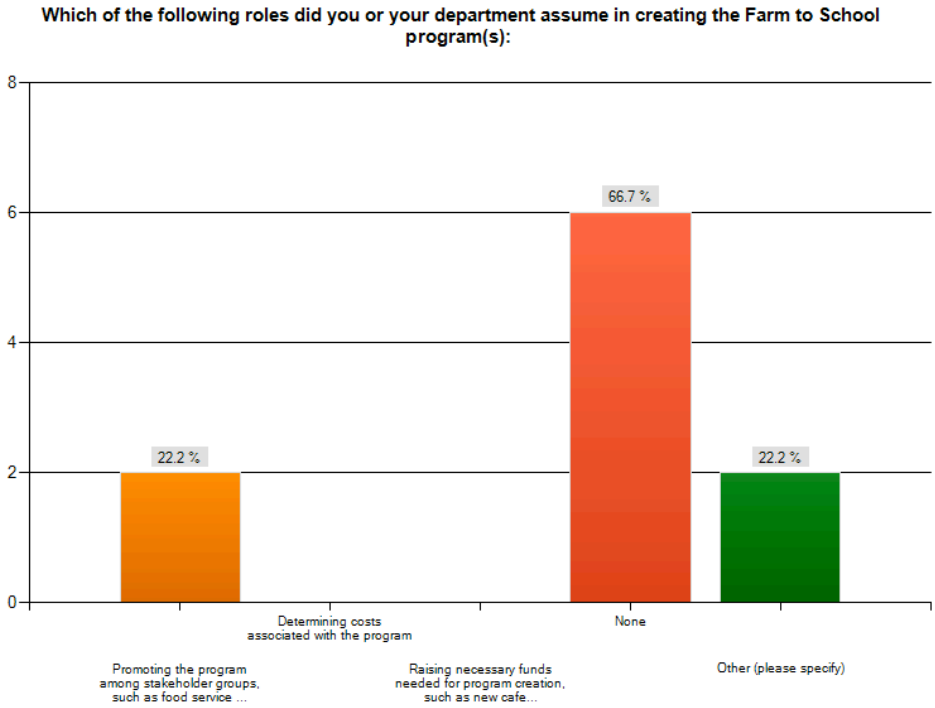

Figure 31- Active Roles in Program Creation

The next question asked about possible land use policies the planners or their departments promoted before the creation of the Farm to School Program(s) that may have helped aid in program creation. This question's full answer choices can be found in Appendix C. Some answer choices were aggregated to allow for further analysis within specific choice groups, such as agricultural taxation policies or urban agricultural tools. The majority of respondents chose agricultural land preservation policies (e.g. agricultural overlay districts) as tools promoted before the creation of the programs. These answers indicate that planners mostly incorporated land preservation techniques and internal urban tools, such as zoning for farmers' markets, over taxation strategies or no policies at all. These land use

tool answers provide information to answer the research question of what agricultural sustainability elements are being incorporated in plans or ordinances. Land preservation techniques may be more readily supported either by staff or the community over taxation strategies and most communities are incorporating some sort of agricultural sustainability strategy over not having any at all. The land use policies and the number of respondents can be found in Figure 32.

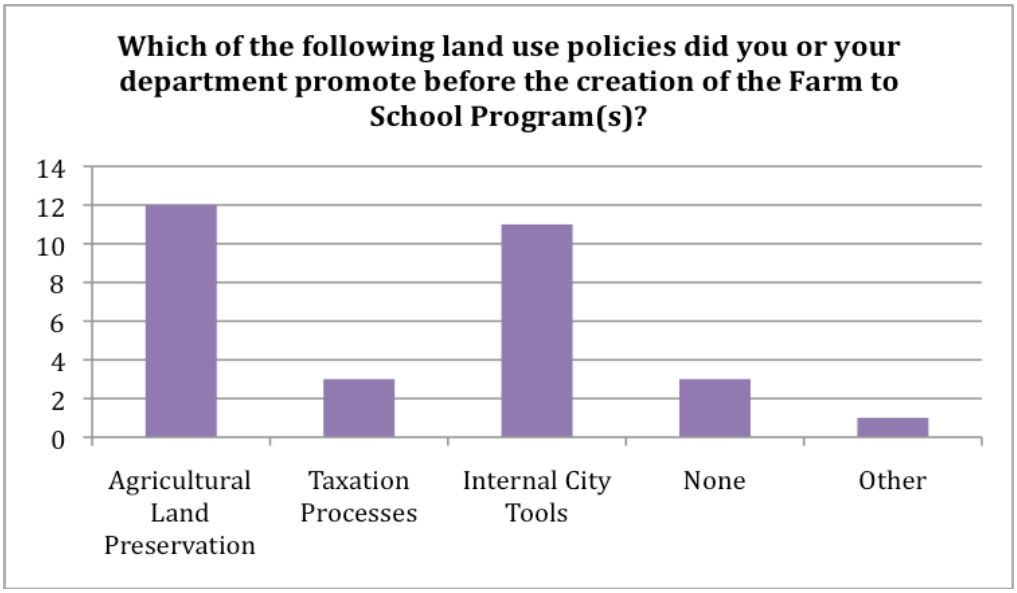

Figure 32- Policy Support Prior to Program Creation

The next question asked what land use policies were promoted by the planners or their department during the implementation of the Farm to School Program(s), which also implies the policies are currently being promoted or supported and may have been implemented to provide support for the programs. The same policies were used as in the previous question. Over half of the respondents (five) respondents answered that they or their department is not currently promoting any of the land use policy choices. However, the majority of

respondents are incorporating some type of land use policy, primarily through internal urban tools like zoning for farmers' markets and urban gardens. The policies and number of respondents can be found in Figure 33.

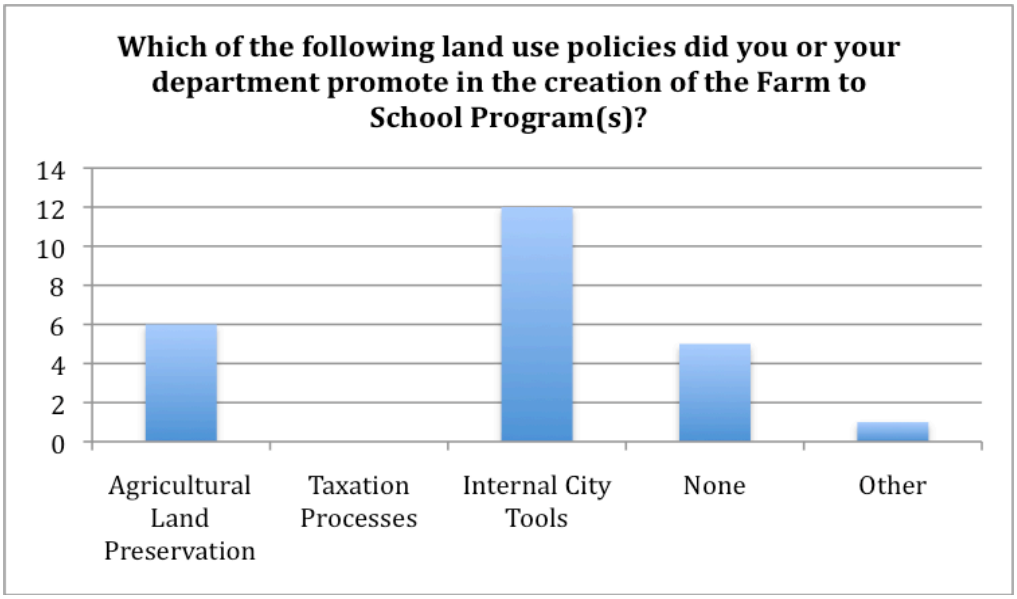

Figure 33- Policy Support During Implementation of Programs

These respondents were also asked if they had seen any of the differences displayed in Figure 34 within their communities since the implementation of the programs. The possible choices included that school children have measurably improved health, overall health of the community has improved, food access issues, such as lack of supermarket access in low-income areas, have received more attention, food system issues, such as loss of farmland or ease of fast food access, have received more attention, immediate economic impact by supporting local agriculture, stronger sense of community by supporting local farmers and promoting better community health, and less sprawling development due to protection of agricultural areas. Half of the respondents cited a stronger sense of

community by supporting local farmers and promoting better community health as a difference since the creation of the programs. The replies within the "Other" category were listed specifically as not being aware of any differences.

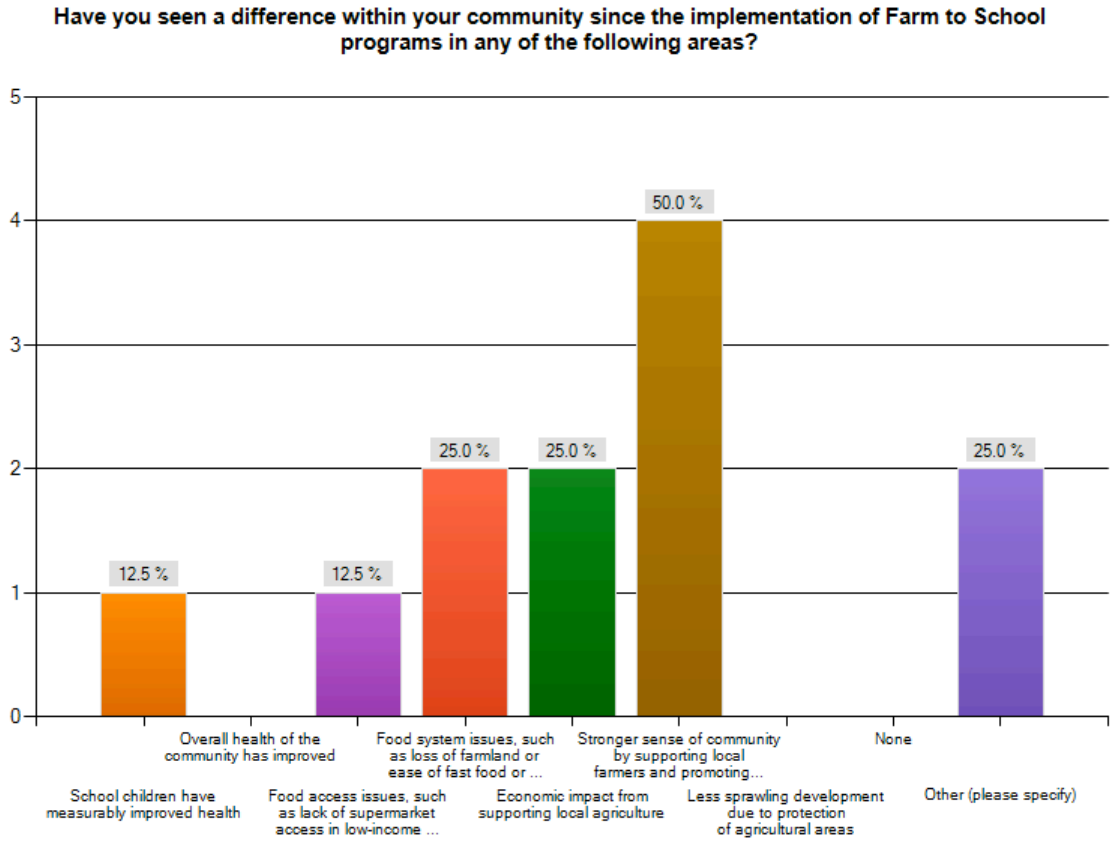

Figure 34- Difference within Community since Program Implementation

Programs are Included in a Plan or Initiative

The next question asked if the Farm to School Program(s) were included in a climate action plan, sustainability plan, or sustainability/smart growth initiatives. The majority of respondents, almost 78 percent, answered that the programs are not included in any of the listed plans or initiatives. The remaining 22 percent (two

respondents) answered that the programs are listed and were subsequently asked why the programs were included. In parallel to the same question asked in the other survey, those respondents overwhelmingly answered that the programs were included in a plan or initiative because they build a stronger community through the support of local business and healthier food choices for children. Two other choices, the support of local farmers and promotion of healthy eating habits, coincide with this choice, and the protection of community culture was also cited as a reason. Since the number of respondents is so low, these reasons for inclusion cannot be generalized to the larger population. However, the answers do provide information as to why the programs were included in those communities, and since they correspond to the answers in the previous survey could be used to support the argument that there are at least a few communities planning for Farm to School Programs and they have concrete reasons for doing so. The reasons for inclusion and associated responses can be found in Figure 35.

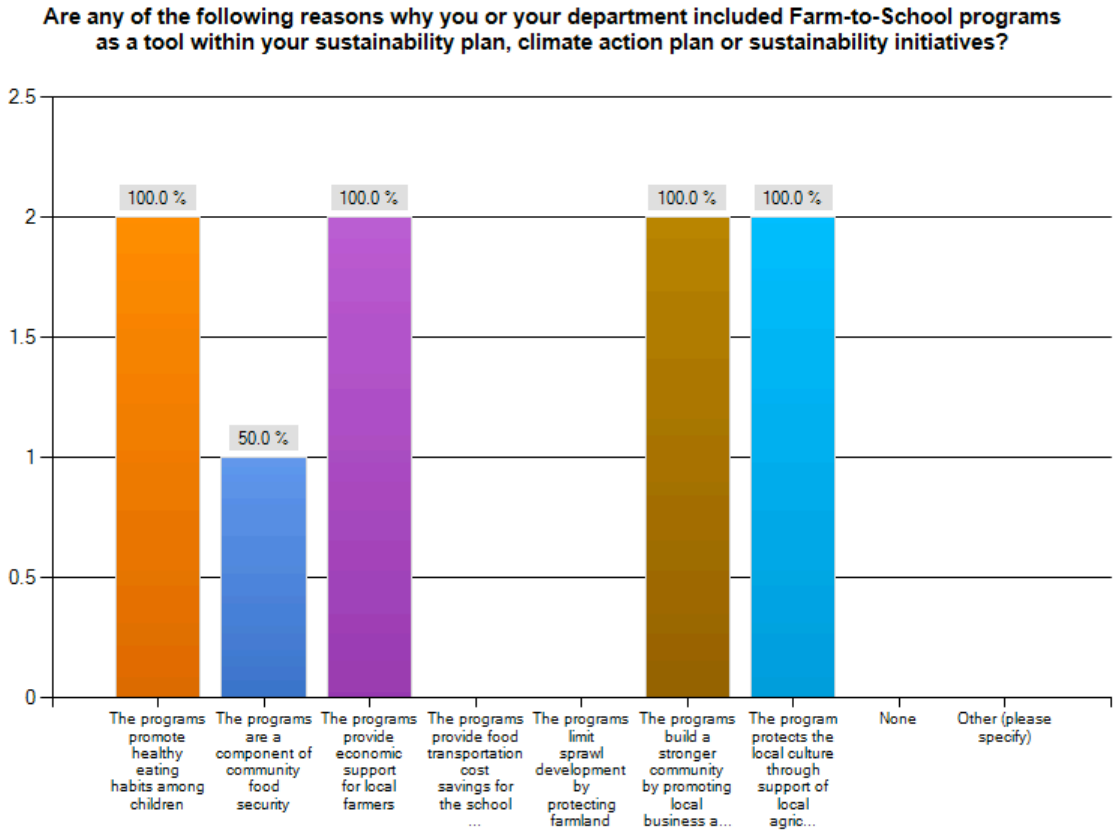

Figure 35- Reasons for Program Inclusion

The next question asked what sort of obstacles the respondents or their departments experienced when including the programs within a plan or initiative. There were only two respondents to this question and one of them answered "None." The other respondent answered that lack of zoning, loss of farmland, lack of funding at all levels and lack of necessary cafeteria equipment were all barriers. It is interesting that despite the barriers, this community still included the programs within their sustainability initiatives.

Programs are Not Included in a Plan or Initiatives

Those who answered that Farm to School Programs are not currently used as a tool within a climate action plan, sustainability plan, or sustainability initiatives (seven respondents) were asked what sort of issues or obstacles to inclusion explained the program exclusion. One person cited lack of zoning as a barrier while the majority of respondents (five) responded in the "Other" category. As specific reasons within this category, respondents cited the lack of agricultural land as a barrier as well as lack of interest from public sector groups to include it within a planning document.

What is interesting about the respondent choosing lack of farmland being a barrier to inclusion of the programs within a plan is that the programs already exist in the respondent's community and they would most likely not exist if the community could not support agricultural land uses. One respondent added that he or she was not directly involved with the creation of the program so he or she is not aware of any obstacles. The responses to this particular question hint at the separation of planners to the creation and implementation of the programs, even though these particular respondents were aware of their community's Farm to School Program(s) before this survey.

Not Previously Aware of Farm to School Programs

Respondents who answered that they had not been aware of their community's Farm to School Program(s) before this survey were asked about the land use policies that either they or their department promoted to affect the

creation of the programs. The majority of respondents chose support for internal city tools, primarily zoning for farmers' markets. The second most popular response was agricultural land preservation policies (e.g. the promotion of cluster developments, which creates higher density developments that limit sprawl and protect agricultural land uses). The land use choices and response percentages can be found in **Figure 36** and the full answer choices can be found in Appendix C.

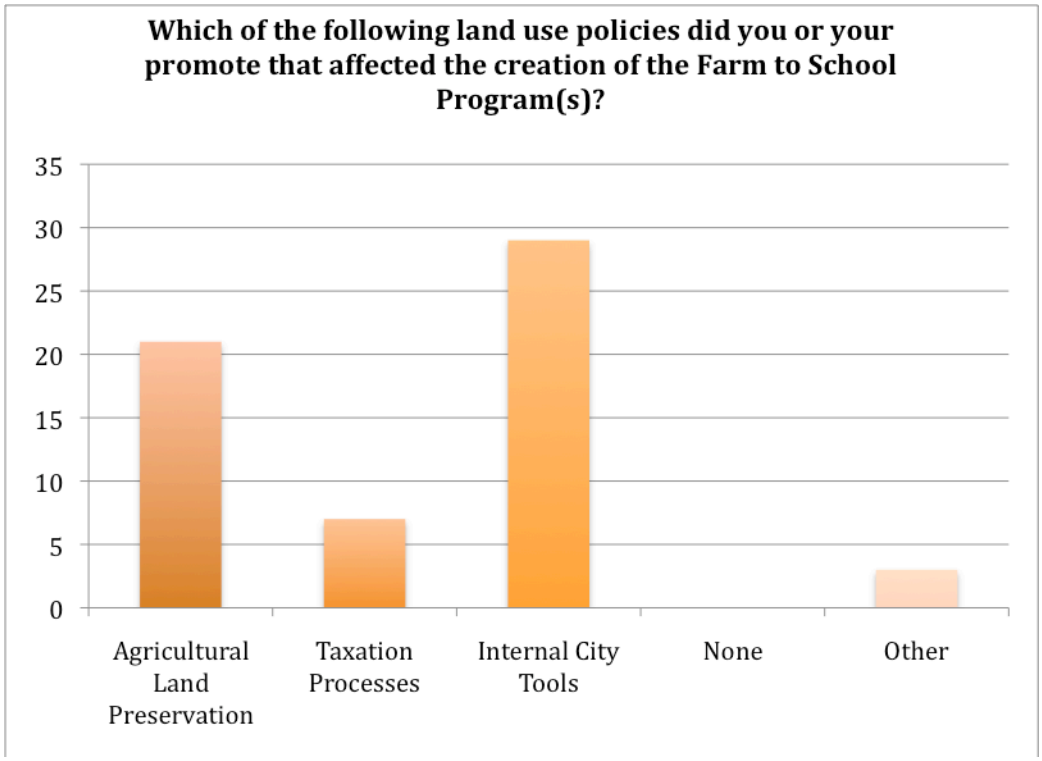

Figure 36- Agricultural Policy Support

Respondents following this survey path (30 total respondents) were then asked if they would consider using Farm to School Programs as a sustainability tool within a plan or sustainability initiative. A little over 68 percent responded they would use the programs and the remaining 32 percent responded they would not.

Three-quarters of respondents that answered that would include Farm to School Programs within a plan or sustainability initiatives (15) responded that the programs would be included because they build a stronger community by promoting local business and providing healthier food alternatives for children. This response correlates with the reasons chosen by planners previously in this survey and with the other community agricultural sustainability survey. 62.5 percent of respondents would also include the programs because they support community culture. This reason also relates to Figure 35, which displays reasons why planners included the Farm to School Program(s) within a plan or sustainability initiative. The various reasons for inclusion and percentage of support can be found in Figure 37.

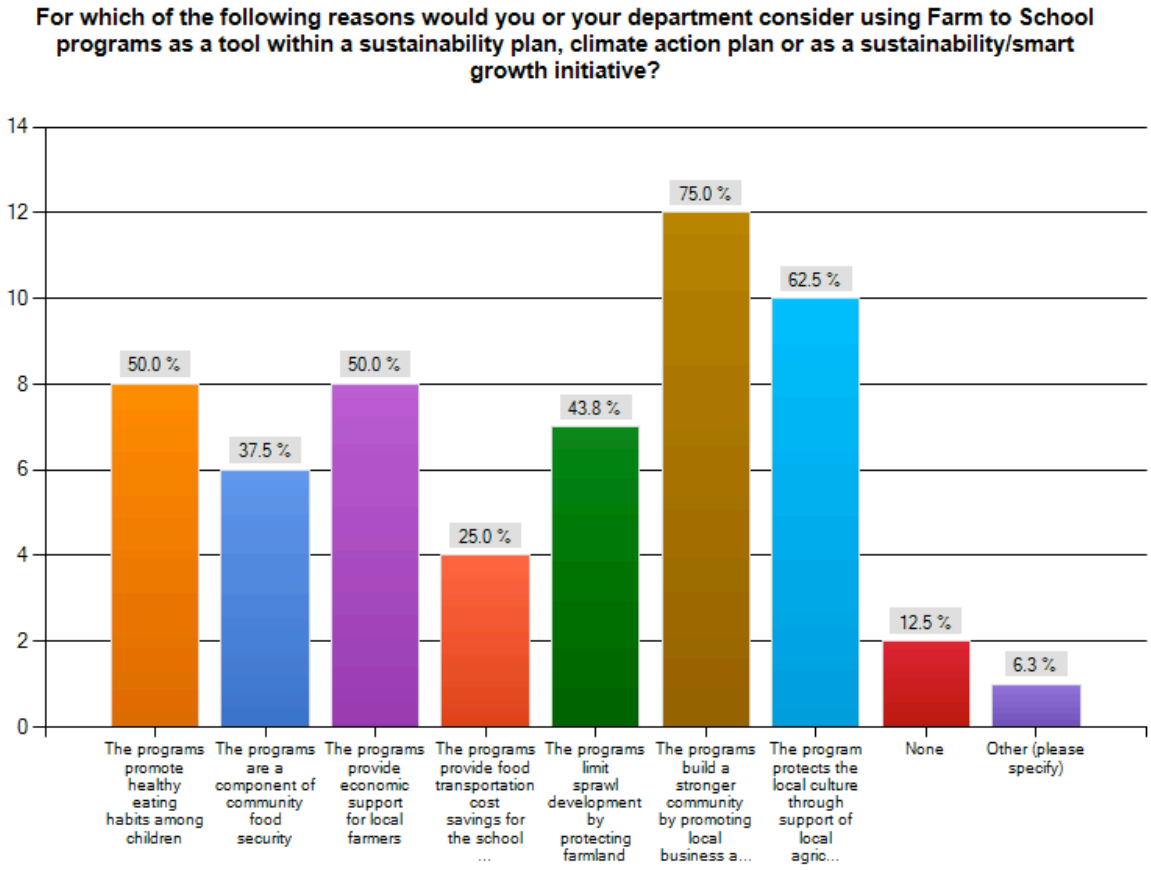

Figure 37- Reasons for Future Inclusion

The 32 percent of respondents who answered they would not include Farm to School Programs in a plan or sustainability initiatives (seven respondents) were asked about the current and potential obstacles to program inclusion within their communities. Almost 67 percent of respondents cited the loss of local farmland as an obstacle. Half responded that the lack of agricultural ordinances is also a problem, which could be contributed to the loss of farmland. However, since Farm to School Programs already exist within their communities, it is interesting to note

that land use obstacles were chosen more often as opposed to political obstacles since there is evidence that the needed land uses are in place. The obstacle choices and percentage of responses can be found in Figure 38.

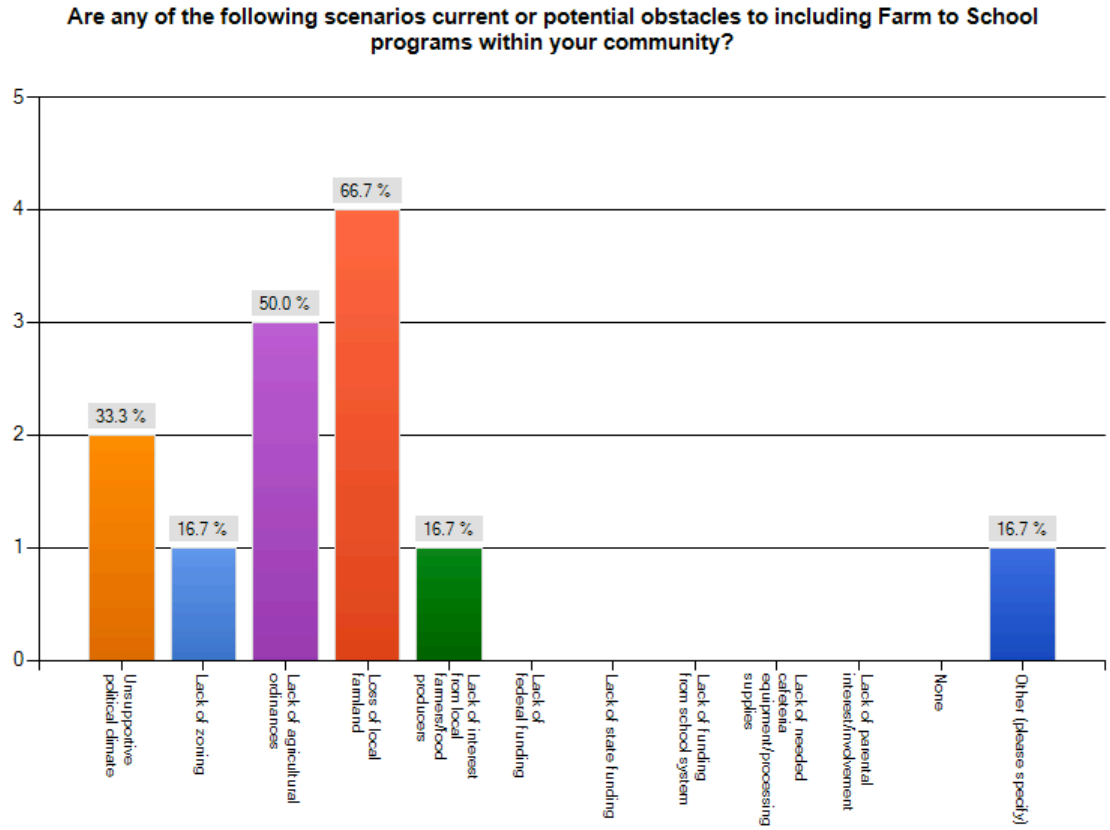

Figure 38- Potential Obstacles to Inclusion

The next question asked the same 32 percent (seven) respondents specifically why the programs would not be included within a plan or sustainability initiative. Like the previous question, the loss of local farmland was the answer with the highest percentage of respondents at 50 percent. Also like the previous question, a third of respondents cited an unsupportive political climate as a factor

when including Farm to School Programs. It is unclear why the loss of farmland would be a factor for inclusion when the programs already exist within the community. Figure 39 displays the reasons and percentage of responses.

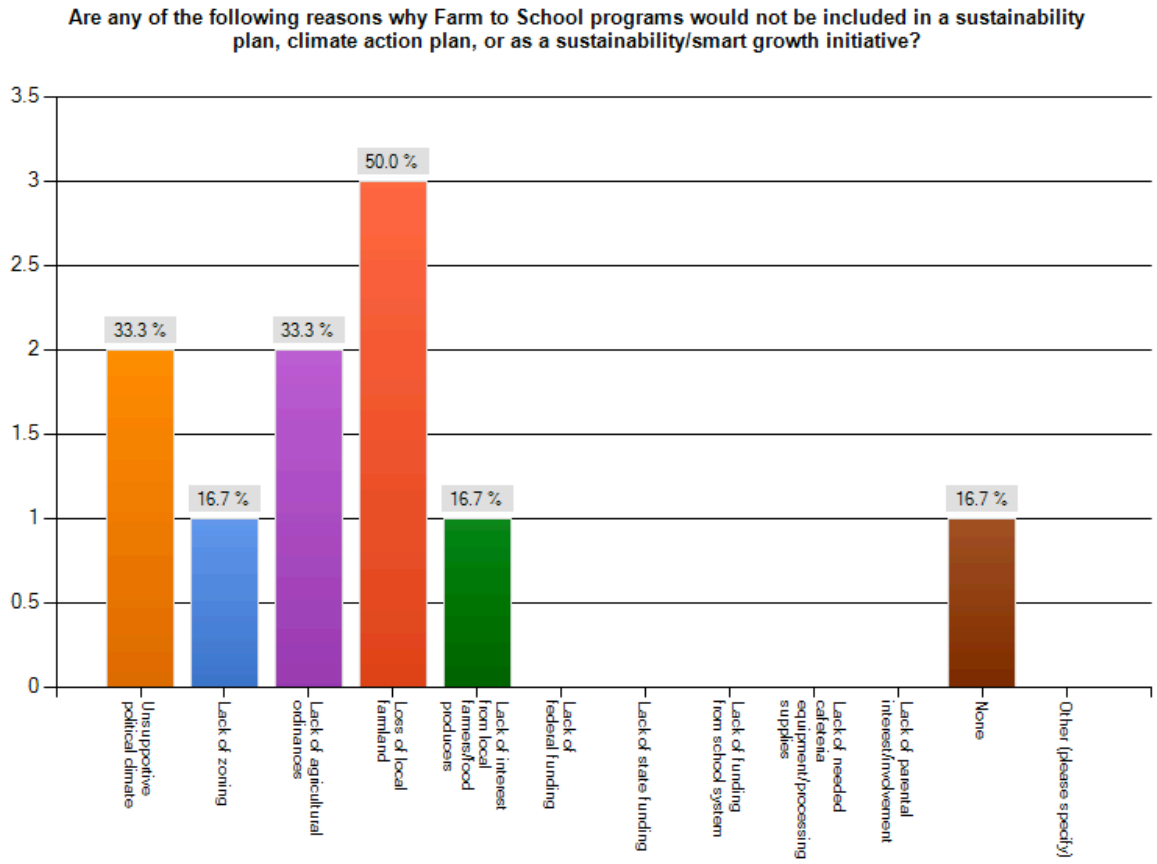

Figure 39- Reasons for Not Considering Programs

Summary

The Farm to School survey respondents indicated that many communities are not knowingly planning for Farm to School Programs and many planners were not aware that these programs exist in their communities. However, the majority of those aware of the programs and those not aware of the programs would be willing

to include the programs into a plan or ordinance in the future for the reasons of improving the eating habits of children and providing economic support for farmers.

Most planners will likely play a passive role in program creation and implementation, meaning implement or support agricultural land use policies. These policies will probably be either agricultural conservation tools or internal urban agricultural initiatives, such as zoning for farmers' markets.

Conclusions

The purpose of these surveys was to determine the types of agricultural sustainability tools currently being employed within communities, whether Farm to School Programs are one of these tools (now or in the future), and what sort of roles planners are playing when planning or implementing the programs. Also of interest were the reasons planners are including the programs or would include them and barriers to program inclusion and implementation they may have experienced or anticipate experiencing. These reasons and barriers provide information as to why planners are including the programs or would include them in the future.

Agricultural Sustainability

The community agricultural sustainability survey gave insight as to where agricultural sustainability is being planned for and what types of tools are being used. As evidenced by the respondents in Figure 14, agricultural sustainability is mostly being planned for in communities in the Northeast, Pacific, and Midwest. These areas would most likely be open to including Farm to School Programs as a tool within their plans and initiatives since this type of sustainability planning is

already underway. The areas with the lowest percentage of respondents in communities planning for agricultural sustainability, like the Mountain region, are perhaps not doing so because of the separation between agricultural and urban planning (i.e. there are few, but very large, farms). This perspective was mentioned in one of the open-ended responses during the survey, as well as the need to plan for more pressing matters, such as job creation and housing.

The tools currently in place or being planned for within these communities are displayed in Figure 17. Zoning to permit farmers' markets is the most utilized agricultural tool, which shows that planners and communities are recognizing the need for market channels and venues for their area farmers. Urban gardens are also a highly used tool with 20 communities currently planning or implementing them.

However, this survey had a large non-response (nearly 75 percent) rate and many respondents did not finish the survey because their community is not addressing agricultural sustainability directly. Therefore, the tools used by the respondent communities cannot be generalized to the population as a whole, but it does show what techniques and policies some communities are using to support agricultural sustainability, which may provide information for other communities to use when starting to implement these tools themselves.

Farm to School Programs

While Farm to School Programs are located in 44 states across the country, the planners in these communities and regions with programs are generally unaware of them- and consequently not planning for them. Of the six respondents

in the community agricultural sustainability survey who have included the programs as a tool within their community, two were from the South region and four from the Northeast. The lack of Farm to School Program use in areas that self identified as having sustainability plans or initiatives, especially in the Pacific region, could be because of lack of knowledge of the programs, as evidenced in the Farm to School survey where almost three quarters of the respondents were not aware their community had a program. However, communities who are not currently planning for or implementing the programs are in support of them and would use them in the future as seen in Figure 23.

Roles for Planners

The community agricultural sustainability survey showed that a couple of planners in communities that have planned for and currently have a Farm to School program in place played an active role by supporting the programs among stakeholders. Of these, most have helped to plan for the programs and continue to promote implementation through land use tools and policy, such as zoning for farmers' markets and agricultural easements (see Figure 18 and Figure 32). What is interesting in the findings, however, is that many communities are unknowingly supporting agricultural sustainability initiatives that indirectly or directly support Farm to School Programs. That these initiatives are already in place may allow for easier planning, creation, and implementation of Farm to School Programs.

Obstacles

Respondents of the community agricultural sustainability survey indicated that the largest obstacle for Farm to School inclusion is lack of zoning. Farm to School survey respondents found the lack of funding from the school system, as well as lack of other funding options, to be the largest barriers to having, and therefore supporting, the programs. Loss of farmland was a secondary concern. Overall, the lack of zoning and lack of funding were the largest issues to overcome when planning for and implementing the programs. However, the lack of zoning obstacle was being addressed, perhaps unknowingly, through the roles planners are playing by supporting agricultural tools and policies.

Reasons for Use and Opportunities

The top reasons for planners to include the programs within plans and ordinances for both surveys were that the programs provide economic support for local farmers and build a stronger community by supporting local business and providing healthier food alternatives for children. Figure 20 and Figure 35 indicate the response rate for various inclusion reasons, with the majority of respondents in each question choosing those reasons. These reasons for inclusion parallel Figure 22, which displays the differences seen by planners in communities that have Farm to School programs. The largest measurable difference seen within these communities was a stronger sense of community by supporting local farmers and promoting healthier eating habits

Summary

It can be inferred from the survey responses that while the American Planning Association is advocating for food planning initiatives (APA, 2007), many communities are still not implementing agricultural sustainability measures. Those who are planning are either in support of Farm to School Programs or would be in support of the programs and are possibly more aware of the programs after these surveys. However, because of the high non-response rate, these statements cannot be generalized to the larger populations or planners across the country.

Communities that are not currently planning for Farm to School Programs may be more likely to include these programs in the future within a plan or initiative as a tool to support community agricultural and food system sustainability. Planners are currently playing more passive roles with program planning and implementation through land use ordinances and policies, many without even realizing that the tools they have in place would help support a program. Planners are most likely not playing an active role due to lack of knowledge and awareness of the programs. However, even with little to no previous knowledge of the programs, most planners who responded to the surveys agree that Farm to School Programs support important tenants of sustainability, such as healthier children, increased economic support for farmers, and a stronger sense of community, and would be willing to include it as a planning tool in the future.

Recommendations

As discussed in the survey literature, a mixed-mode survey is the best method to ensure an increased response and more data. Future survey research on this subject should use a letter of contact or a paper follow-up reminder if time and money permits.

The community agricultural sustainability survey may have gleaned more results regarding sustainability, in particular agricultural sustainability, had a different or larger population been used. While the Mayors' Climate Action Plan Agreement signatory list is part of an organization that promotes sustainability and strives to achieve certain tenants, there is no policing of the communities to ensure they are actually carrying through with the organization's goals. Therefore, any community can sign the agreement, whether they have sustainability planning or initiatives or not. Responses from this population and the Farm to School population could not be verified through documentation.

Additional follow-up questions to the communities in the community agricultural sustainability survey who do not currently have agricultural sustainability planning in place would have been useful for understanding why those communities do not have this planning. It is not clear from the responses what sort of barriers these communities are experiencing, whether it be geographic, climate, or political reasons.

Appendices

Appendix A

Community Agricultural Sustainability Contacts

State	Region	Number of Contacts	Number of Farms	Amount of Land in Farms (acres)
Iowa	Midwest	25	92,856	30,747,550
Idaho	Midwest	7	25,349	11,497,383
Illinois	Midwest	48	76,860	26,775,100
Indiana	Midwest	15	60,938	14,773,184
Kansas	Midwest	11	65,531	46,345,827
Michigan	Midwest	29	56,014	10,031,807
Minnesota	Midwest	39	80,992	26,917,962
Missouri	Midwest	19	107,825	29,026,573
Nebraska	Midwest	3	47,712	45,480,358
Ohio	Midwest	24	75,861	13,956,563
Oklahoma	Midwest	2	86,565	35,087,269
Wisconsin	Midwest	18	78,463	15,190,804
Arizona	Mountain	12	15,637	26,117,899
Colorado	Mountain	17	37,054	31,604,911
Montana	Mountain	4	29,524	61,388,462
North Dakota	Mountain	2	31,970	39,674,586
New Mexico	Mountain	9	20,930	43,238,049
Nevada	Mountain	5	3,131	5,865,392
South Dakota	Mountain	2	31,169	43,666,403
Utah	Mountain	4	16,700	11,094,700
Wyoming	Mountain	1	11,069	30,169,526
Connecticut	Northeast	19	4,916	405,616
Delaware	Northeast	1	2,546	510,253
Massachusetts	Northeast	31	7,691	517,879
Maryland	Northeast	13	12,834	2,051,756
Maine	Northeast	15	8,136	1,347,566
New Hampshire	Northeast	9	4,166	471,911
New Jersey	Northeast	66	10,327	733,450
New York	Northeast	40	36,352	7,174,743
Pennsylvania	Northeast	16	63,163	7,809,244
Rhode Island	Northeast	4	1,219	67,819
Vermont	Northeast	2	6,984	1,233,313
Alaska	Pacific	4	686	881,585
California	Pacific	134	81,033	25,364,695
Hawaii	Pacific	4	7,521	1,121,329
Oregon	Pacific	16	38,553	16,399,647
Washington	Pacific	33	39,284	14,972,789
Alabama	South	7	48,753	9,033,537
Arkansas	South	5	49,346	13,872,862
Kentucky	South	7	85,260	13,993,121

Louisiana	South	4	30,106	8,109,975
Mississippi	South	3	41,959	11,456,241
Texas	South	27	247,437	130,398,753
District of Columbia	Southeast	1	N/A	N/A
Florida	Southeast	76	47,463	9,231,570
Georgia	Southeast	10	47,846	10,150,539
North Carolina	Southeast	41	52,913	8,474,671
South Carolina	Southeast	7	25,867	4,889,339
Tennessee	Southeast	7	79,280	10,969,798
Virginia	Southeast	10	47,383	8,103,925
West Virginia	Southeast	3	23,618	3,697,606

Farm to School Contacts

State	Region	Number of Contacts
Illinois	Midwest	3
Michigan	Midwest	5
Minnesota	Midwest	8
Missouri	Midwest	3
Ohio	Midwest	3
Wisconsin	Midwest	6
Arizona	Mountain	2
Colorado	Mountain	4
Montana	Mountain	3
New Mexico	Mountain	1
Connecticut	Northeast	4
Delaware	Northeast	1
Massachusetts	Northeast	3
Maryland	Northeast	2
Maine	Northeast	1
New Hampshire	Northeast	6
New Jersey	Northeast	4
New York	Northeast	6
Pennsylvania	Northeast	3
Rhode Island	Northeast	7
Vermont	Northeast	6
Alaska	Pacific	1
California	Pacific	33
Hawaii	Pacific	3
Oregon	Pacific	3
Washington	Pacific	3
Arkansas	South	1
Kentucky	South	1
Louisiana	South	1
Oklahoma	South	5
Texas	South	3
Florida	Southeast	5
Georgia	Southeast	3

North Carolina	Southeast	3
South Carolina	Southeast	1
Tennessee	Southeast	1
Virginia	Southeast	15

Appendix B

Community Agricultural Sustainability Plan Survey Respondents

State	Region	Number of Respondents
Illinois	Midwest	15
Indiana	Midwest	6
Iowa	Midwest	7
Kansas	Midwest	2
Michigan	Midwest	9
Minnesota	Midwest	9
Missouri	Midwest	5
Nebraska	Midwest	2
Ohio	Midwest	1
Wisconsin	Midwest	7
Arizona	Mountain	4
Colorado	Mountain	5
Idaho	Mountain	3
Montana	Mountain	3
Nevada	Mountain	1
New Mexico	Mountain	3
South Dakota	Mountain	1
Utah	Mountain	2
Maine	Northeast	3
Massachusetts	Northeast	8
Connecticut	Northeast	4
Delaware	Northeast	1
Maryland	Northeast	3
New Hampshire	Northeast	4
New Jersey	Northeast	11
New York	Northeast	9
Pennsylvania	Northeast	3
Vermont	Northeast	2
Alaska	Pacific	2
California	Pacific	30
Hawaii	Pacific	1

Oregon	Pacific	4
Washington	Pacific	9
Arkansas	South	9
Kentucky	South	3
Mississippi	South	2
Texas	South	8
District of Columbia	Southeast	1
Florida	Southeast	21
Georgia	Southeast	2
North Carolina	Southeast	8
South Carolina	Southeast	4
Tennessee	Southeast	3
West Virginia	Southeast	1
Unknown	Unknown	1

Farm to School Survey Respondents

State	Region	Number of Respondents
Illinois	Midwest	2
Minnesota	Midwest	1
Arizona	Mountain	2
Montana	Mountain	2
Connecticut	Northeast	2
Maine	Northeast	1
New York	Northeast	2
Vermont	Northeast	1
California	Pacific	11
Oregon	Pacific	2
Kentucky	South	1
Texas	South	1
Florida	Southeast	2
Georgia	Southeast	2
North Carolina	Southeast	1
Virginia	Southeast	8

Appendix C

Community Agricultural Sustainability Plan Survey Questions

My name is Samantha Jackson and I am a city planning master's student in the Department of Planning and Landscape Architecture at Clemson University in Clemson, South Carolina. The purpose of this survey is to collect information regarding local community sustainability or smart growth initiatives to determine how Farm to School programs are contributing to agricultural sustainability within local communities.

Farm to School programs are identified as USDA or state funded programs that provide farm-fresh and local food to schools as well as education and field trips to give children experience in growing food. I have contacted you because the mayor of your community has signed the U.S. Conference of Mayors Climate Protection Agreement. Your feedback is integral to the outcome of this research and any survey participants will have access to the findings.

The survey should take approximately 15 minutes. If you have any questions or concerns please contact me at samrjackson@gmail.com.

1. Community name and state:

2. Department:

3. Position title:

4. Which of the following sustainability and smart growth tools are currently employed or are planned in your community?

   (*Check all that apply*)

   A stand-alone climate action plan

   A stand-alone sustainability plan

   Sustainability initiatives/tools/and ordinances that can include or be similar to the following (not a comprehensive list):

   - Allowing green infrastructure options in planning and engineering
   - Requiring landscape plans
   - Promoting transit oriented developments
   - Developing traditional neighborhood development ordinances/plans
   - Developing stream buffer ordinances

- Encouraging innovative wastewater treatment facilities/measures

Other

None

5. If they exist, would you be willing to share a copy of your climate action plan, sustainability plan, or other smart growth plan/ordinances through a web link?

   Yes

   No

6. Does your community directly address agricultural sustainability within a climate or sustainability plan?

   Yes (skips question 7)

   No (answers question 7)

7. Does your community address agricultural sustainability by including initiatives within other plans or ordinances?

   Yes (continues with survey)

   No

8. What agriculturally supportive tools does the plan or ordinances employ?

   (*Check all that apply*)

   Agricultural overlay district provisions

   Agricultural protection zoning/buffer areas

   Right-to-farm legislation

   Taxation strategies to discourage agricultural land conversion

   Discourage extension of urban services to agricultural areas

   Urban growth boundary or urban service district boundary

   Conservation subdivisions

   Agricultural conservation easements

   Transfer of development rights

Cluster developments/mixed-use developments with housing/offices/commercial uses/and recreation as a use by right

Farm-to-School programs (Path One)

Zoning to permit farmer's markets or regulations allowing them as temporary uses, conditional uses, or special exceptions

Urban agricultural gardens

Urban agricultural farming/gardening plot rental

Roadside vending permits for farm-fresh produce

Other

None

Path One:

9. You checked Farm-to-School programs as an agricultural sustainability tool in your community. Does a Farm to School program, similar program, or plans to start a program exist in your community? Answer yes if any part of the above question is true for your community.

   Yes (Continues to Question 10 and skips 11)

   No (Skips to Question 11)

   I don't know (Skips to Question 11)

10. How did you or your department play a role in creating the program(s):

    (*Check all that apply*)

    Promoting the program among stakeholder groups, such as food service staff, local farmers or public officials

    Determining costs associated with the program

    Raising necessary funds needed for program creation, such as new cafeteria equipment

    Promoting land trust purchases

    Establishing urban growth boundaries

    Promoting transfer of development rights legislation and/or ordinances

Promoting property tax relief legislation for agricultural uses and lands

Creating agricultural overlay districts

Establishing farmer's markets

Other

None

11. Please select any of the following actions you or your department is currently taking or intend to take to ensure your community is able to implement a Farm to School program:

(*Check all that apply*)

Promoting the program among stakeholder groups, such as food service staff, local farmers or public officials

Determining costs associated with the program

Raising necessary funds needed for program creation, such as new cafeteria equipment

Promoting land trust purchases

Establishing urban growth boundaries

Promoting transfer of development rights legislation and/or ordinances

Promoting property tax relief legislation for agricultural uses and lands

Creating agricultural overlay districts

Establishing farmer's markets

Other

None

12. Are any of the following reasons why you or your department included Farm-to-School programs as a tool within your sustainability plan, climate action plan or sustainability initiatives?

(Check all that apply)

The programs promote healthy eating habits among children

The programs are a component of community food security

The programs provide economic support for local farmers

The programs provide transportation cost savings for the school system

The programs limit sprawl development by protecting farmland

The programs build a stronger community by promoting local business and providing healthier food alternatives to children

The program protects the local culture through support of local agriculture and labor

Other

None

13. What obstacles to inclusion of these programs did you encounter?

(*Your anonymity will be protected and answers will be kept confidential*)

Unsupportive political climate

Lack of zoning

Lack of agricultural ordinances

Loss of local farmland

Lack of interest from local farmers/food producers

Lack of funding from state

Lack of funding from school system

Lack of needed cafeteria equipment/processing supplies

Lack of parental interest/involvement

Other

None

14. Have you seen a difference within your community since the implementation of Farm to School programs in any of the following areas?

(*Check all that apply*)

School children health has improved

Overall health of the community has improved

Food access issues, such as lack of supermarket access in low-income areas, have received more attention

Food system issues, such as loss of farmland or ease of fast food or unhealthy food access, have received more attention

Immediate economic impact by supporting local agriculture

Stronger sense of community by supporting local farmers and promoting better community health

Less sprawling development due to protection of agricultural areas

Other

None

15. Are there any other comments or suggestions you'd like to make regarding sustainability, smart growth, or Farm to School programs?

Path Two:

9. Are Farm to School programs a tool you would consider using in a sustainability plan, climate action plan or as a sustainability/smart growth initiative?

Yes (answers 10 and skips 12)

No (skips to question 11)

10. For which of the following reasons would you or your department consider using Farm to School programs as a tool within a sustainability plan, climate action plan or as a sustainability/smart growth initiative?

(Check all that apply)

The programs promote healthy eating habits among children

The programs are a component of community food security

The programs provide economic support for local farmers

The programs provide transportation cost savings for the school system

The programs limit sprawl development by protecting farmland

The programs build a stronger community by promoting local business and providing healthier food alternatives to children

The program protects the local culture through support of local agriculture and labor

Other

None

11. Are any of the following scenarios current or potential obstacles to including Farm to School programs within your community?

(*Your anonymity will be protected and answers will be kept confidential*)

(*Check all that apply*)

Unsupportive political climate

Lack of zoning

Lack of agricultural ordinances

Loss of local farmland

Lack of interest from local farmers/food producers

Lack of federal funding

Lack of state funding

Lack of funding from school system

Lack of needed cafeteria equipment/processing supplies

Lack of parental interest/involvement

Other

None

12. Are any of the following reasons why you or your department would not include Farm to School programs in a sustainability plan, climate action plan, or as a sustainability/smart growth initiative?

(*Your anonymity will be protected and answers will be kept confidential*)

(*Check all that apply*)

Unsupportive political climate

Lack of zoning

Lack of agricultural ordinances

Loss of local farmland

Lack of interest from local farmers/food producers

Lack of federal funding

Lack of state funding

13. Are there any other comments or suggestions you'd like to make regarding sustainability, smart growth, or Farm to School programs?

Farm to School Survey Questions

My name is Samantha Jackson and I am a city planning master's student in the Department of Planning and Landscape Architecture at Clemson University in Clemson, South Carolina. This survey seeks to understand the role community planners are playing in the creation and implementation of Farm to School programs. Your feedback is integral to the outcome of this research and survey participants will have access to the findings.

Farm to School programs have been started in 43 states as a remedy to address omitted issues in the current food system, such as support of local farms and affordable healthy foods for children. These programs provide farm-fresh and local food to schools, as well as education and field trips to give children experience in growing food. A program/multiple programs has/have been identified in your community.

The survey should take approximately 15 minutes. If you have any questions or concerns please contact me at samrjackson@gmail.com.

1. Community name and state:

2. Department:

3. Position title:

4. Before this survey, were you aware that a Farm to School program existed in your community?

Yes (Path One)

No (Path Two)

Path One

5. Which of the following roles did you or your department assume in creating the Farm to School program(s):

   (*Check all that apply*)

   Promoting the program among stakeholder groups, such as food service staff, local farmers or public officials

   Determining costs associated with the program

   Raising necessary funds needed for program creation, such as new cafeteria equipment

   Other

   None

6. Which of the following land use policies did you or your department promote either before or during the creation of the Farm to School program(s)?

   (*Check all that apply*)

   Before Program Creation

   Land trust purchases

   Property tax relief legislation for agricultural uses and lands

   Zoning to permit farmer's markets or regulations allowing them as temporary uses, conditional uses, or special exceptions

   Agricultural conservation easements

   Agricultural overlay district provisions

   Agricultural protection zoning/buffer areas

   Right-to-farm legislation

   Taxation strategies to discourage agricultural land conversion

   Urban growth boundary or urban service district boundary

   Conservation subdivisions

Agricultural conservation easements

Transfer of development rights

Cluster developments/mixed-use developments with housing/offices/commercial uses/and recreation as a use by right

Urban agricultural gardens

Urban agricultural farming/gardening plot rental

Roadside vending permits for farm-fresh produce

Other

None

During Program Implementation

Land trust purchases

Property tax relief legislation for agricultural uses and lands

Zoning to permit farmer's markets or regulations allowing them as temporary uses, conditional uses, or special exceptions

Agricultural conservation easements

Agricultural overlay district provisions

Agricultural protection zoning/buffer areas

Right-to-farm legislation

Taxation strategies to discourage agricultural land conversion

Urban growth boundary or urban service district boundary

Conservation subdivisions

Agricultural conservation easements

Transfer of development rights

Cluster developments/mixed-use developments with housing/offices/commercial uses/and recreation as a use by right

Urban agricultural gardens

Urban agricultural farming/gardening plot rental

Roadside vending permits for farm-fresh produce

Other

None

7. Are the programs listed as a tool within any of the following: a sustainability plan, climate action plan, or within sustainability/smart growth initiatives/ordinances?

   Yes (Answers question 8 and 9 and skips 10 then continues to 11)

   No (Skips to question 10 then continues to 11)

8. Are any of the following reasons why you or your department included Farm-to-School programs as a tool within your sustainability plan, climate action plan or sustainability initiatives?

   (Check all that apply)

   The programs promote healthy eating habits among children

   The programs are a component of community food security

   The programs provide economic support for local farmers

   The programs provide transportation cost savings for the school system

   The programs limit sprawl development by protecting farmland

   The programs build a stronger community by promoting local business and providing healthier food alternatives to children

   The program protects the local culture through support of local agriculture and labor

   Other

   None

9. Which, if any, of the following were obstacles to inclusion of these programs?

   (*Your anonymity will be protected and answers will be kept confidential*)

   (*Check all that apply*)

   Unsupportive political climate

   Lack of zoning

Lack of agricultural ordinances

Loss of local farmland

Lack of interest from local farmers/food producers

Lack of federal funding

Lack of state funding

Lack of funding from school system

Lack of needed cafeteria equipment/processing supplies

Lack of parental interest/involvement

Other

None

10. Which, if any, of the following issues are obstacles that prevented Farm to School programs from being included within a planning document?

(*Your anonymity will be protected and answers will be kept confidential*)

(*Check all that apply*)

Unsupportive political climate

Lack of zoning

Lack of agricultural ordinances

Loss of local farmland

Lack of interest from local farmers/food producers

Lack of federal funding

Lack of state funding

Lack of funding from school system

Lack of needed cafeteria equipment/processing supplies

Lack of parental interest/involvement

Other

None

11. Have you seen a difference within your community since the implementation of Farm to School programs in any of the following areas?

    (*Check all that apply*)

    School children have measurably improved health

    Overall health of the community has improved

    Food access issues, such as lack of supermarket access in low-income areas, have received more attention

    Food system issues, such as loss of farmland or ease of fast food or unhealthy food access, have received more attention

    Immediate economic impact by supporting local agriculture

    Stronger sense of community by supporting local farmers and promoting better community health

    Less sprawling development due to protection of agricultural areas

    Other

    None

12. If they exist, would you be willing to share a copy of your climate action plan, sustainability plan, or other smart growth plan/ordinances through a web link?

    Yes

    No

13. Are there any other comments or suggestions you would like to add regarding Farm to School programs?

Path Two

5. Which of the following land use policies did you promote that affected the creation of the Farm to School program(s)?

    (*Check all that apply*)

    Land trust purchases

    Property tax relief legislation for agricultural uses and lands

Zoning to permit farmer's markets or regulations allowing them as temporary uses, conditional uses, or special exceptions

Agricultural conservation easements

Agricultural overlay district provisions

Agricultural protection zoning/buffer areas

Right-to-farm legislation

Taxation strategies to discourage agricultural land conversion

Urban growth boundary or urban service district boundary

Conservation subdivisions

Agricultural conservation easements

Transfer of development rights

Cluster developments/mixed-use developments with housing/offices/commercial uses/and recreation as a use by right

Zoning to permit farmer's markets or regulations allowing them as temporary uses, conditional uses, or special exceptions

Urban agricultural gardens

Urban agricultural farming/gardening plot rental

Roadside vending permits for farm-fresh produce

None

Other

6. Are Farm to School programs a tool you would consider using in a sustainability plan, climate action plan or as a sustainability/smart growth initiative?

   Yes (answers 7 and skips 9)

   No (skips to question 9)

7. For which of the following reasons would you or your department consider using Farm to School programs as a tool within a sustainability plan, climate action plan or as a sustainability/smart growth initiative?

(Check all that apply)

The programs promote healthy eating habits among children

The programs are a component of community food security

The programs provide economic support for local farmers

The programs provide transportation cost savings for the school system

The programs limit sprawl development by protecting farmland

The programs build a stronger community by promoting local business and providing healthier food alternatives to children

The program protects the local culture through support of local agriculture and labor

Other

None

8. Are any of the following scenarios current or potential obstacles to including Farm to School programs within your community?

(*Your anonymity will be protected and answers will be kept confidential*)

(*Check all that apply*)

Unsupportive political climate

Lack of zoning

Lack of agricultural ordinances

Loss of local farmland

Lack of interest from local farmers/food producers

Lack of federal funding

Lack of state funding

Lack of funding from school system

Lack of needed cafeteria equipment/processing supplies

Lack of parental interest/involvement

Other

None

9. Are any of the following issues reasons to omit Farm to School programs in a sustainability plan, climate action plan, or as a sustainability/smart growth initiative?

   (*Your anonymity will be protected and answers will be kept confidential*)

   (*Check all that apply*)

   Unsupportive political climate

   Lack of zoning

   Lack of agricultural ordinances

   Loss of local farmland

   Lack of interest from local farmers/food producers

   Lack of federal funding

   Lack of state funding

   Lack of funding from school system

   Lack of needed cafeteria equipment/processing supplies

   Lack of parental interest/involvement

   Other

   None

10. If they exist, would you be willing to share a copy of your climate action plan, sustainability plan, or other smart growth plan/ordinances through a web link?

    Yes

    No

11. Are there any other comments or suggestions you would like to add regarding Farm to School programs?

Bibliography

Altieri, M. (1999). The ecological role of biodiversity in agroecosystems. *Agriculture, Ecosystems and Environment, 74*, 19-31.

American Planning Association. (2007). *Policy guide on community and regional food planning*

American Planning Association. (2007). *Policy guide on planning for sustainability*

Berke, P. (2002). Does sustainable development offer a new direction for planning? challenges for the twenty-first century. *Journal of Planning Literature, 17*(1), 21-36.

Berke, P., & Conroy, M. (2000). Are we planning for sustainable development? an evaluation of 30 comprehensive plans. *Journal of the American Planning Association, 66*(1), 21-33.

Campbell, M. C. (2004). Building a common table: The role for planning in community food systems. *Journal of Planning Education and Research, 23*, 341-355.

Campbell, S. (1996). Green cities, growing cities, just cities? urban planning and the contradictions of sustainable development. *Journal of the American Planning Association, 62*(3)

Clifton, K. (2004). Mobility strategies and food shopping for low-income families: A case study. *Journal of Planning Education and Research, 23*, 402-413.

Cochrane, W. (1993). *The development of American agriculture: A historical analysis* University of Minnesota Press.

Dillman, D. (2000). *Mail and internet surveys: The tailored design method* (Second ed.) John Wiley & Sons.

Dimitri, C., Effland, A., & Conklin, N. (2005). *The 20th century transformation of U.S. agriculture and farm policy* No. 3)USDA.

Farm to Cafeteria Connections. Farm-to-cafeteria from a community organizer perspective. *Marketing Opportunities for Small Farms in Washington State,* , 35-41.

Feagan, R. (2007). The place of food: Mapping out the "local" in local food systems. *Progress in Human Geography, 31*(1), 23-42.

Feenstra, G. (1997). Local food systems and sustainable communities. *American Journal of Alternative Agriculture, 12*(1), 28-36.

Fox, M., & Cole, N. (2004). Nutrition and health characteristics of low-income populations: Volume II, school-age children. *USDA Economic Research Service,*

Francis, C., & et al. (2005). Food systems and environment: Building positive rural-urban linkages. *Human Ecology Review, 12*(1), 60-71.

Galvez, M., Morland, K., Raines, C., Kobil, J., Siskind, J., Godbold, J., et al. (2007). Race and food store availability in an inner-city neighbourhood. *Public Health and Nutrition, 11*(6), 624-631.

Gardner, B. (2002). *American agriculture in the 20th century: How it flourished and what it cost* President and Fellows of Harvard College.

Gillespie, G., & Gillespie, A. Community food systems: Toward a common language for building productive partnerships.

Greenlaw, C., & Brown-Welty, S. (2009). A comparison of web-based and paper-based survey methods: Testing assumptions of survey mode and response cost. *Evaluation Review, 33*(5), 464-479.

Jepson, E. (2004). The adoption of sustainable development policies and techniques in U.S. cities: How wide, how deep, and what role for planners? *Journal of Planning Education and Research, 23*, 229-241.

Jyoti, D., Frongillo, E., & Jones, S. (2005). Food insecurity affects school children's academic performance, weight gain, and social skills. *The Journal of Nutrition,*

Kalb, M., Kristen, M., & Tedeschi, S. (2004). *Linking farms with schools: A guide to farm-to-school programs for schools, farmers and organizers.* USDA Risk Management Agency.

Kalb, M., Markley, K., & Tedeschi, S. (March 2004). Linking farms with schools: A guide to farm-to-school programs for schools, farmers and organizers.

Kaplowitz, M., Hadlock, T., & Levine, R. (2004). A comparison of web and mail survey response rates. *Public Opinion Quarterly, 68*(1), 94-101.

Kaufman, J. (2004). Planning for the local food system in the united states. *The new dimensions of the European landscape* (4th ed., pp. 39-57)

Khan, L., Sobush, K., Keener, D., Goodman, K., Lowry, A., Kakietek, J., et al. (2009). *Recommended community strategies and measurements to prevent obesity in the united states* No. 58)CDC.

Kroth, P., McPherson, L., Leverence, R., Pace, W., Daniels, E., Rhyne, R., et al. (2009). Combining web-based and mail surveys improves response rates: A PBRN study from PRIME net. *Ann Fam Med, 7*, 245-248.

Matson, P., Parton, W., Power, A., & Swift, M. (1997). Agricultural intensification and ecosystem properties. *Science, 277*, 504-509.

Mendes, W., Balmer, K., Kaethler, T., & Rhoads, A. (2008). Using land inventories to plan for urban agriculture. *Journal of the American Planning Association, 74*(4), 435-449.

Mikkelsen, L., Cohen, L., Harris, K., & Keir, K. (2001). Growing the next generation: Strategies to improve nutrition and child development in Los Angeles county. *Oakland California: Prevention Institute,*

Montpelier, V. (2010). *Community action plan*

National Farm to School Program. (2004). *Farm to school: Case studies and resources for success*

Nichol, L. (2003). Local food production: Some implications for planning. *Planning Theory and Practice, 4*(4), 409-427.

Pothukuchi, K., Glosser, D., & Kaufman, J. (2007). Community and regional food planning. *PASMEMO,*

Pothukuchi, K., & Kaufman, J. (1999). Placing the food system on the urban agenda: The role of municipal institutions in food systems planning. *Agriculture and Human Values, 16*, 213-224.

Saha, D., & Paterson, R. (2008). Local government efforts to promote the "three es" of sustainable development: Survey in medium to large cities in the united states. *Journal of Planning Education and Research, 28*(21), 21-37.

USDA. (2008). *Farm to house economics and well-being: Farm household income*Briefing Rooms.

USDA. (2009). *Access to affordable and nutritious Food—Measuring and understanding food deserts and their consequences: Report to congress* No. AP-036)Administrative Publication.

USDA. (2009). Child nutrition program: National school lunch program. *Briefing Rooms,*

Vallianatos, M., Gottlieb, R., & Haase, M. A. (2004). Farm-to-school: Strategies for urban health, combating sprawl, and establishing a community food systems approach. *Journal of Planning Education and Research, 23*, 414-423.

Wagenvoord, H. (2004, The cheapest calories make you the fattest. *Sierra,*

Young, A., Zenk, S., & Mason, M. (2009). Measuring food availability and access in African-American communities. *American Journal of Preventative Medicine, 36*(4S), S145-S150.